

# 3dcreative

Issue 077 January 2012

## Luis Antonio

3DCreative interview this talented Art Director.

## Guang Yang, Insun Kwon & more!

Gallery - 10 of the best images from around the world!

## "Sector 21"

Project Overview by Rudolf Herczog

# SCULPTING ARMORED BEASTS

Bruno Camara starts off our brand new ZBrush tutorial series with the creation of this armored lizard character.

## Cyborgs

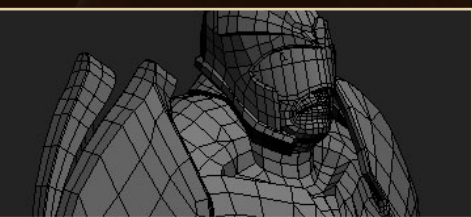
In this issue **Andrzej Sykut** will be looking at the human face and how to add some sci-fi looking implants and glasses.

## Sword Master 2

**Gavin Goulden** brings us the forth chapter of our **Sword Master 2** series, this time showing us how to unwrap our low poly games model.

## Topology

**Diego Maia** continues his fantastic Topology series by showing us how to organize and create limbs and accessories ready for animation.







## EDITORIAL

Hello and welcome to the January issue of 3DCreative. We hope you had a great Christmas and a memorable New Year. I am sure you have been busy entertaining relatives and rushing around delivering presents over the festive season, so now it's time to kick back and relax with the January issue.

This month's issue is a real cracker, and we are really excited to be able to announce a new ZBrush series. Monsters and organic creatures are always popular with ZBrush users, but at times it can be hard to add non-organic features to sculpts. In this new series our artists will be taking an animal and will show us how to turn it into a ferocious armored beast and how to add armor to it. In the first installment of this stunning series **Bruno Camara** will be showing us in great detail how he created his Armored lizard.

I hope you have all been enjoying following **Gavin Goulden's** steps in his fantastic Swordmaster series. In this issue Gavin will be showing us how to unwrap our low poly games model in a clean and efficient fashion. We will soon be getting to the exciting part where we can see the stunning full color results.

We kicked off **Andrzej Sykut's** new series about using photo's to create images of Cyborg's last month and hope you all enjoyed learning this interesting technique which is new to our magazine. In this issue we will be looking at the human face and how to add some sci-fi looking implants and glasses. This is a fascinating tutorial, and demonstrates a really interesting technique for creating geometry to help you create your base head to work from.

Understanding and mastering topology is obviously no easy task, however as always we are here to help and in this issue **Diego Maia** will continue his fantastic Topology series by showing us how to organize and create limbs and accessories ready for animation.

Many of you will be familiar with the work of Art Director **Luis Antonio**. Luis has held a host of positions in the games industry and has travelled the world moving from one major games company to another. In this interview Luis tells us how he draws inspiration from each new destination he travels to and how one day he would like to turn games into an art form.

## CONTENTS

What's in this month?



### LUIS ANTONIO

Interview - Art Director



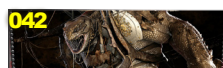
### THE GALLERY

10 of the Best 3D Artworks



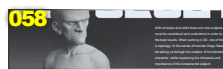
### CYBORGS

Chapter 2: Sunglasses



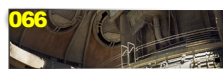
### ARMORED BEASTS

Chapter 1: Lizard



### TOPOLOGY

Chapter 2: Limbs and Accessories



### "SECTOR 21"

Project Overview by Rudolf Herczog



### FREE CHAPTER

Digital Art Masters: Volume 6 - Marek Denko



### SWORDMASTER 2

Chapter 4: Unwrapping



### ABOUT US

3DTotal.com Ltd Information & Contacts

Copyright © 1999-2011 3DTotal.com Ltd. All Rights reserved

All products and websites created/published by 3DTotal.com Ltd including [www.3dtotal.com](http://www.3dtotal.com), [www.3dcreativemag.com](http://www.3dcreativemag.com), [www.2dartistmag.com](http://www.2dartistmag.com) all physical books, ebooks, emags, video content, texture libraries and any future releases may not be reproduced in any form or by any means, without the prior written consent of the publisher.

EDITOR	LAYOUT	CONTENT	PROOFING
Simon Morse	Matt Lewis	Simon Morse	Jo Hargreaves
	Layla Khani	Tom Greenway	
LEAD DESIGNER			MARKETING
Chris Perrins	Az Pishneshin	Richard Tilbury	Tom Helme
		Chris Perrins	

### FREE STUFF!

Wherever you see this symbol, click it to download resources, extras & even movies!



We also have a great Making of in this issue and some stunning gallery images. **Rudolf Herczog** shows us how he created his amazing Sci-Fi image Sector 21, and the gallery contains art work from some of the industry's most talented artists including **Christopher Brändström**, **Rebeca Puebla**, **James Jean-Pierre** and **Carlos Ortega**.





## SETTING UP YOUR PDF READER

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: [DOWNLOAD!](#)

To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:

1. Open the magazine in Reader;
2. Go to the **VIEW** menu, then **PAGE DISPLAY**;
3. Select **TWO-UP CONTINUOUS**, making sure that **SHOW COVER PAGE** is also selected.

That's it!

# Get the most out of your Magazine!

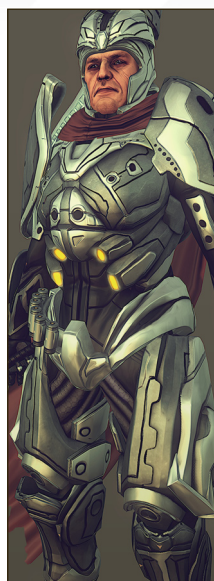
If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!





## CONTRIBUTING ARTISTS

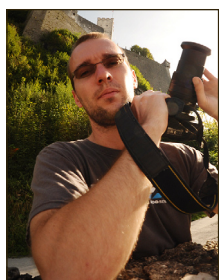
Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in the 3DCreative magazine, please contact: [simon@3dtotal.com](mailto:simon@3dtotal.com)



### GAVIN GOULDEN

Gavin Goulden is a character artist for Irrational Games working on Bioshock Infinite. With 6 years games industry experience, he has contributed character and environment art assets to multiple titles including Dead Rising 2, The Bigs 2, Damnation and FEAR 2.

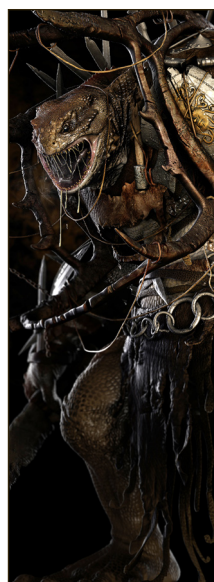
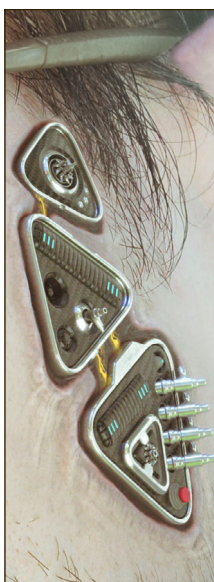
<http://www.gavimage.com/>  
[gavin@gavimage.com](mailto:gavin@gavimage.com)



### ANDRZEJ SYKUT

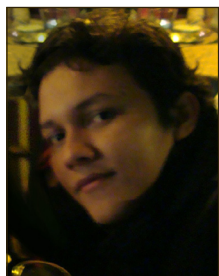
When it comes to CG, Andrzej is a bit of a generalist, but lighting is where the fun is for him – that, and post-production/

compositing. He currently works at Platige Image, and also does some freelancing as well. While he enjoys his work, it's also time-consuming, so he tries to get away from the computer as often as possible to enjoy the world. <http://azazel.carbonmade.com/>  
[eltazaar@gmail.com](mailto:eltazaar@gmail.com)



### BRUNO CÂMARA

Bruno Câmara is a Brazilian artist that has been working in the CG industry for 6 years as a 3D generalist. He has a degree in Computer Science but his true passion is character creation. Bruno has worked for major TV Ad companies but he is now becoming a freelance character artist. <http://bruno-camara.blogspot.com>  
[bruno999@gmail.com](mailto:bruno999@gmail.com)



### DIEGO MAIA

Diego Maia is a freelance 3D modeler and concept designer from Brazil. He has worked for some of the biggest advertising companies in Brazil, and has also been teaching drawing classes at Melies School for three years.

<http://maia3d.blogspot.com/>  
[maia3d@gmail.com](mailto:maia3d@gmail.com)



### RUDOLF HERCZOG

Rudolf Herczog is a self taught digital artist from Sweden who currently works as a freelancer. He has a passion for sci-fi and old contemporary architecture, and is always looking for a new way to combine these. He has recently become interested in matte painting so is working on developing his skills in that area. <http://www.rochr.com>  
[rudy@rochr.com](mailto:rudy@rochr.com)



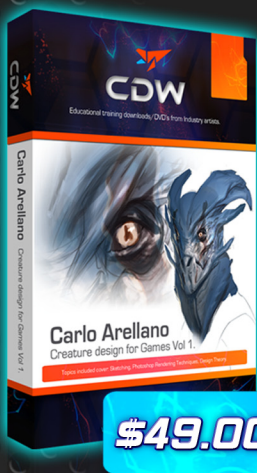




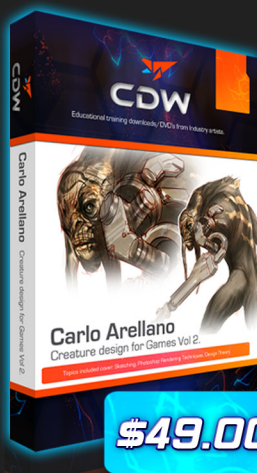
[www.conceptdesignworkshop.com](http://www.conceptdesignworkshop.com)

**INSTRUCTIONAL TRAINING**  
**DIGITAL DOWNLOADS FROM WORLD CLASS**  
**INDUSTRY PROFESSIONALS**

**OUT NOW!**

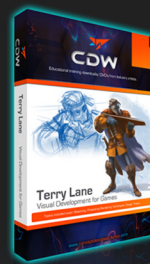


**\$49.00 USD**

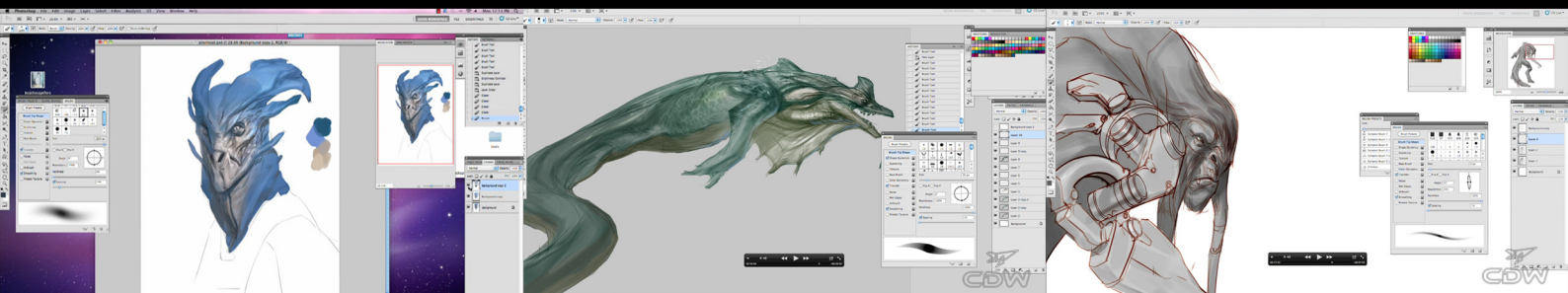


**\$49.00 USD**

**COMING TO THE STORE SOON....**



Purchase digital downloads from the store at:  
[www.conceptdesignworkshop.com](http://www.conceptdesignworkshop.com)



Screenshots from Carlo Arellano's Creature Design for Games series.



Kevin Chen  
[Concept Design Academy]

Nick Pill  
[Rising Sun Pictures]

Carlo Arellano  
[Insomniac Games]



[www.conceptdesignworkshop.com](http://www.conceptdesignworkshop.com)





THE NEXT STEP IN DIGITAL ART



Image Courtesy of Pixolator

MODELED  
SCULPTED  
RENDERED

in  ZBRUSH 4R2<sup>®</sup>  
AVAILABLE NOW

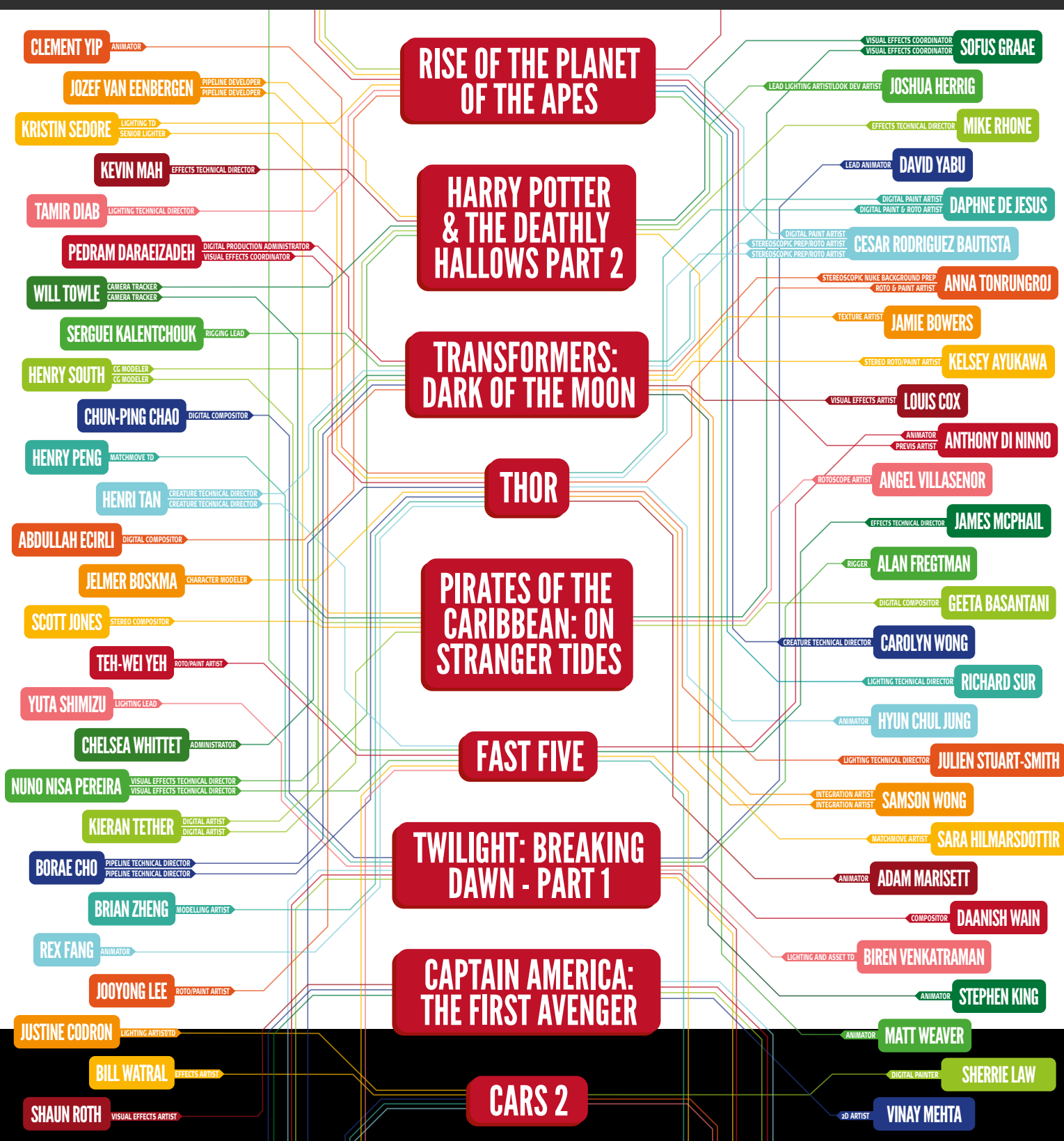
Pixologic<sup>™</sup>  
makers of ZBRUSH<sup>®</sup>

View Features at  
[www.Pixologic.com](http://www.Pixologic.com)  
Join our online artist  
community at  
[www.ZBrushCentral.com](http://www.ZBrushCentral.com)



# WATCHED A BLOCKBUSTER IN 2011?

9 OF THE 10 HIGHEST-GROSSING MOVIES OF LAST YEAR FEATURED THE WORK OF VFS ANIMATION & VISUAL EFFECTS GRADS.



VFS CONNECTS THE ENTERTAINMENT INDUSTRY.

**VFS**  
**ANIMATION & VISUAL EFFECTS**

LEARN MORE AT [VFS.COM/ANIMATIONVFX](http://VFS.COM/ANIMATIONVFX)

COMPUTER GRAPHICS  
STUDENT AWARDS  
**SCHOOL  
OF  
THE YEAR**  
2010 & 2011  
cgCOACH



Luis Antonio is a fantastically talented art director who has worked for some of the biggest names in the business, including Rockstar and Ubisoft. In this month's interview Luis tells us how he has travelled the world gathering inspiration from each new location as he searches for new and exciting experiences in the games industry, as well as sharing a little about his future goal to turn games into an art form.

# LUIS ANTONIO



"THE NUMBER OF FORUMS AND WEBSITES WHERE ARTISTS AROUND THE WORLD CAN MEET IS JUST UNBELIEVABLE"



Hi Luis can you tell us about the real you?

What were you like growing up and how did you end up working in the CG industry?

For as far back as I can remember I drew. At home, on vacation, at school during classes. All my books are filled with drawings everywhere. I knew inside that this was what I wanted to do all the time, and thanks to some really good teachers in high school I came to realize that this was possible.

The moment it clicked was in my first year of university. I joined an agency and they started to give me different freelance jobs for newspapers, magazines and sometimes TV shows and I loved it. The deadlines were super aggressive, but seeing my work in the Saturday newspapers or in a double page spread would feel so good, and at the same time I was able to understand what it was like working in a professional environment. I was hooked!

Halfway through my studies I found the world of 3D. I knew I had to make a decision as to what my next move would be. With that in mind I began learning 3ds Max, so by the end of



my degree I had a strong illustrative and 3D portfolio. I knew I wanted to go into movies or video games, and that Portugal was not developed enough in those areas so I needed to find another place to do this. The United Kingdom was the closest country that was suitable and I was good at English so I started applying to studios that I liked the look of until I got a reply back from Rockstar Games inviting me for an interview.

Have you had to sacrifice much for art such as where you live etc?

I don't think so... quite the contrary. I never felt it was possible to grow so much in so little time, and the fact that I moved so much has made me aware of what is really important and taught me to not be attached to the material things. We live in great times where Facebook, Skype and technology allows us to keep in touch with people we love and no one is ever that far away.



I also have to say that I feed on going into a new country, coming across new cultures and new ways of being – you learn so much. The things I have seen and experienced in different countries has been really inspiring. Oh, and every weekend is like I'm on vacation since it's a different country.

**Besides your foreign travels, where else do you look for inspiration and how does it influence you?**

The way I see it is that the internet has revolutionized the way we inspire ourselves as artists. The number of forums and websites where artists around the world can meet is just unbelievable and you can actually talk with some of the great masters that have worked on things that inspired you as you grew up.



Over the years I have found my favorite spots on the web where people I admire and learn from provide constant sources of inspiration. The more you give the art community, the more they give you back; it's really beautiful. If I see a shot in a movie that I like, within a couple of hours I can follow the director of photography, understand where he came from, what he did, other movies he worked on and what inspired him. Nowadays for me the problem is more about having the time to actually see/observe this whole gigantic backlog of inspiration and art that the community provides on a daily basis.

**Can you lead us through a typical day for you as an art director?**

The day always starts with a daily meeting where the whole art team gathers together and we go over the overall plans for the week and what we are aiming to do that day. After that I'll usually go over to the rest of the development team, designers, programmers and producers and get all the information needed for the artists

to do their work and make sure they are on the right track. After lunch I end up doing more of a one to one with specific artists focused on close milestones and what they have to deliver. I try to give as much support as possible with mock-ups, ideas and inspiration to make sure they can give the best they have.

The end of the day is usually more relaxed, where I try to make sure we all share the cool stuff that was done and get some feedback/critics from everyone so we are all challenged and inspired for the next day.

**Has it ever been difficult to translate an artistic idea into a project due to tools and/or pipeline limitations? If so, how did you come up with the solution?**

Yes! And I think that the gaming industry, due to the hardware limitations and constant technological evolution, is always struggling with that. Personally my biggest issue is not being aware of the skills and strengths of your team



and forcing them to do something they are not strong at. As an example, imagine getting a really strong character artist to create a 2D flash user interface. It won't make them happy and the work they will do won't match their skills.

The best solution I have found so far is to listen and truly understand the passion and what drives every single artist. We are a team and we are working together at least eight hours a day! We need to understand each other and see what makes every one of us tick. There are moments where you just don't have a choice and the nature of the project forces you to do things you don't love, but there is always a little something you can find that will make you enjoy your day and be creative.

**How often do you try to step out of your comfort zone and try something new? Would you define that as a key to success?**

I don't think there is a key to success; it's like a producer asking his team to do a 95%+ game. If your aim is to do what you love then you will naturally be successful, at least with yourself (I guess that's the key). I always try to leave my comfort zone and expand my skills and



knowledge. It's hard and I think we naturally try to get back to it, and in a way travelling and being in a new place really helps to keep it new and fresh. I would say it's important to have our roots, the people we love and the little things that keep us inspired and once you find those you can kind of move all the other ones around.

**I noticed the excellent and detailed tutorials on your web page. Do you have any thoughts of turning them into a book and/or taking a teaching role?**

When I was in university I wished there was a teacher that could give classes on 3D art, but at the time in Portugal there was no such course so I had to learn everything by myself. I've always wanted to go back and give others the opportunity I never had. While at Ubisoft I

had a chance to mentor some students (they have a program for internships for students to participate in game development) and I really liked it. Right now work is too busy and I hope once there is more time that I can do it again. As for tutorials, I've received really good feedback on what I've done so far. I have some other ideas in preparation, but it's too early to talk about them, just stay tuned...

**From pencil drawing to ZBrush sculpts, your work portrays personal stylized characters. Did it take years to develop?**

That's a hard question. I would say that my style is naturally evolving and has grown from what it was a few years ago. When I look back I see a huge evolution, but when I look at where I am now I still feel I have tons to learn.









# THE INTERVIEW



What drives your personal and work projects? Is it the new beginnings, work phases, finished artwork or the game play itself?

I try to guide my professional work by the essence of the gameplay of whatever game I'm working on and let it dictate the visual. It's easy to get distracted and make it personal or just to do what you feel is cool and start to lose focus on what is actually important. I like all

the phases of a project and even though I look forward to the finished artwork it's the day to day process that is the most fun. I've noticed in the last few years that the games I have more pleasure working on often don't end up being the best ones.

As for personal projects, I usually use my free time to do what is not possible at work. If I'm currently doing something extremely stylized I

will try to work on something realistic at home. Or sometimes I'll just focus on learning some new tools and trying to leave my comfort zone.

Did you ever change your entire focus towards the end of a project and start from scratch? What did you take from that experience?

That is a really good question since it happened recently. When I started to work in games I







would be very attached to everything and would be very frustrated if I had to change it or if it ended up not being used. After a few projects I started to see the overall picture and how it wasn't my personal work, but a team effort.

On my last project we got away from that overall picture and had to re-design the art direction from the ground up. It was a really big ask for the artists and producers since we were supposed to already be in production, but in the end everyone was really happy with the results. I learned that it is important to always keep in the back of your mind what the real objectives of your project are. You can even write it in big letters on a whiteboard and whenever you start to stray, just look at it and make sure you get back on track.

**You must always have the next step in mind – where do you see yourself over the next few years?**

I want to elevate games to the art form I believe

they deserve to be. I've had a chance to work on triple A games with Rockstar and to lead a team at Ubisoft. Both experiences were amazing and I grew a lot, but felt something was missing.

The current economic climate is forcing the big companies to be money driven and forget what games are about (or maybe it was always their nature and I only just noticed it). I think every game developer has the responsibility to make good games. Games that actually have something to say and aren't just fast food or another sequel with no new gameplay evolution. I need to be part of an environment like this and see if it's actually possible to do something that will give gamers something deeper than just entertainment.

**Do you have any big future projects lined up or any more moves on the horizon?**

Yes! I've just had the opportunity to work with someone I greatly admire: Jonathan Blow. He is a very good designer and games developer. It's

been a month since I joined him in the creation of his new game *The Witness* and I'll be moving to San Francisco by the end of year! It's a big change from a studio of 300+ people to about 4 or 5. I'm hoping this experience will allow me to do something more meaningful as a game developer and at the same time grow further as an artist.

**Thank you for answering all of our questions and good luck for the future!**

Thank you for the opportunity to share my thoughts as an artist. I think you guys are doing an amazing job and helping to make the 3D artist community grow in the right direction.

**LUIS ANTONIO**

For more from this artist visit:

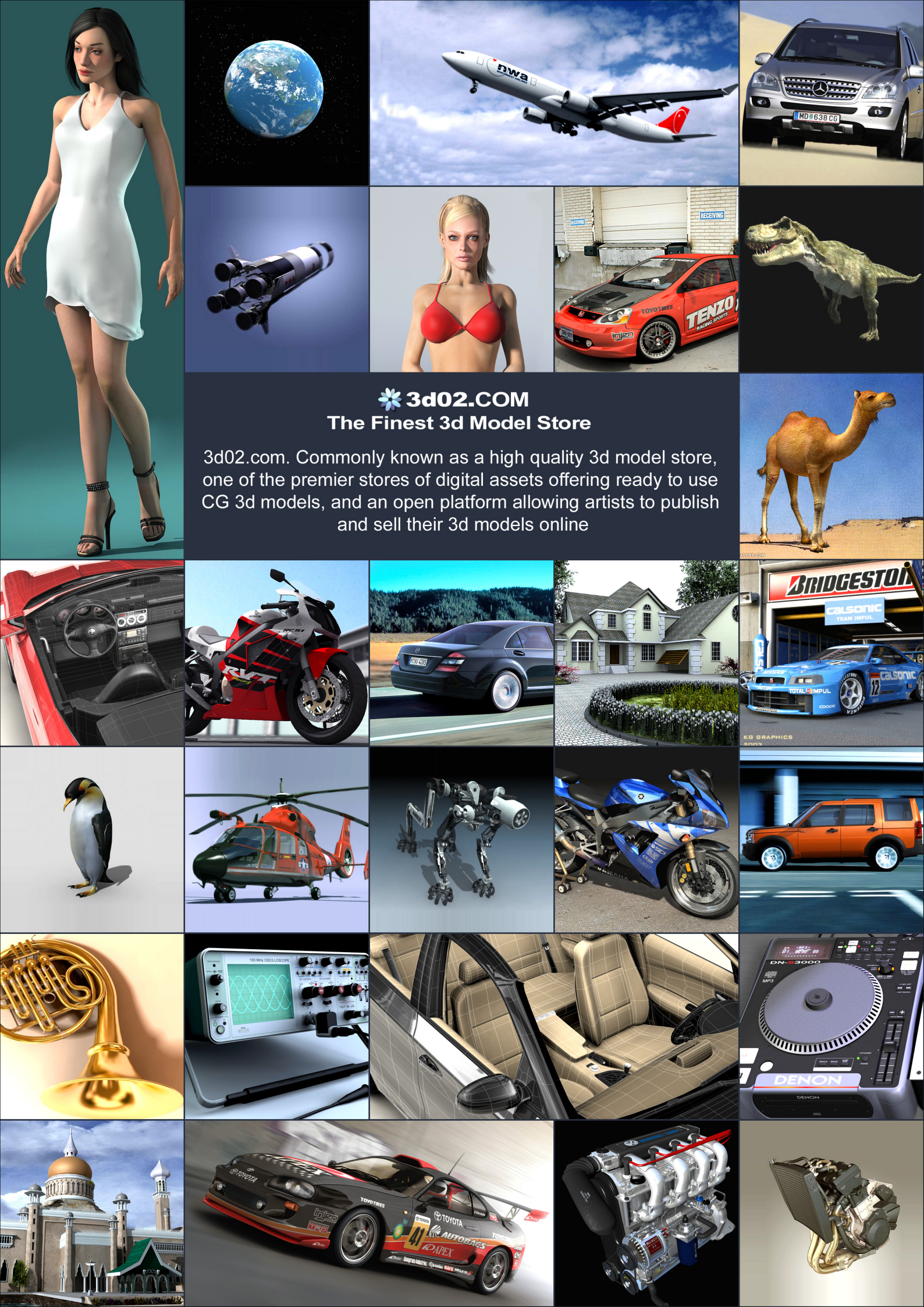
<http://artofluis.com/>

Or contact him at:

[facaelectrica@gmail.com](mailto:facaelectrica@gmail.com)

Interviewed by: Predrag Suka





**3d02.COM**

**The Finest 3d Model Store**

3d02.com. Commonly known as a high quality 3d model store, one of the premier stores of digital assets offering ready to use CG 3d models, and an open platform allowing artists to publish and sell their 3d models online



**Learn Animation from the Best in the Business**



**Think Tank**

**TRAINING CENTRE**

**[www.tttc.ca](http://www.tttc.ca)**





# THE GALLERY

This month we feature:

- Faraz Haider
- Tamas Gyerman
- Khadyko Vladimir
- Carlos Ortega
- Christopher Brändström
- Alex Novitskiy
- Insun Kwon
- Guang Yang
- Rebeca Puebla
- James Jean-Pierre



## STAR TREK CHARACTER

**Christopher Brändström**

<http://www.badrobots.se>

[christopher@brandstrom.as](mailto:christopher@brandstrom.as)

(Right)



## LANTERN

**Khadyko Vladimir**

[work\\_3d@yahoo.com](mailto:work_3d@yahoo.com)

(Left)









OPEL KAPITAN 1938

Alex Novitskiy

<http://arttalk.ru/profile/Tigerfather>

tigersfather@gmail.com



## BROKEN MARIONETTE

**Rebeca Puebla**

<http://rebecapuebla.com>

[rebecapuebla@hotmail.com](mailto:rebecapuebla@hotmail.com)





# THE NIGHT CHICAGO DIED

Carlos Ortega

<http://www.zigrafus.com.mx/>

[strogg\\_tank@hotmail.com](mailto:strogg_tank@hotmail.com)











## MNU SOLDIER

James Jean-Pierre

<http://www.jjp3d.com>

[james@jjp3d.com](mailto:james@jjp3d.com)







PREDATOR

Insun Kwon

<http://insunkwon.com>

[insunkwon@gmail.com](mailto:insunkwon@gmail.com)











## RALLYPOINT - OUTER RIM

Tamas Gyerman

<http://wmlone.com/cinemorx>

[tamas.gyerman@gmail.com](mailto:tamas.gyerman@gmail.com)





## OFFICE FARHAN

Faraz haider

[s.f.haider@hotmail.com](mailto:s.f.haider@hotmail.com)



FIGHT IN THE DARK

Guang Yang

as\_artsunshine@hotmail.com







Meet modo.  
**Luxology**



# SWORDMASTER 2

FOLLOW THIS  
TUTORIAL SERIES ON  
**PAGE 078**

## CHAPTER 4 - UNWRAPPING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.

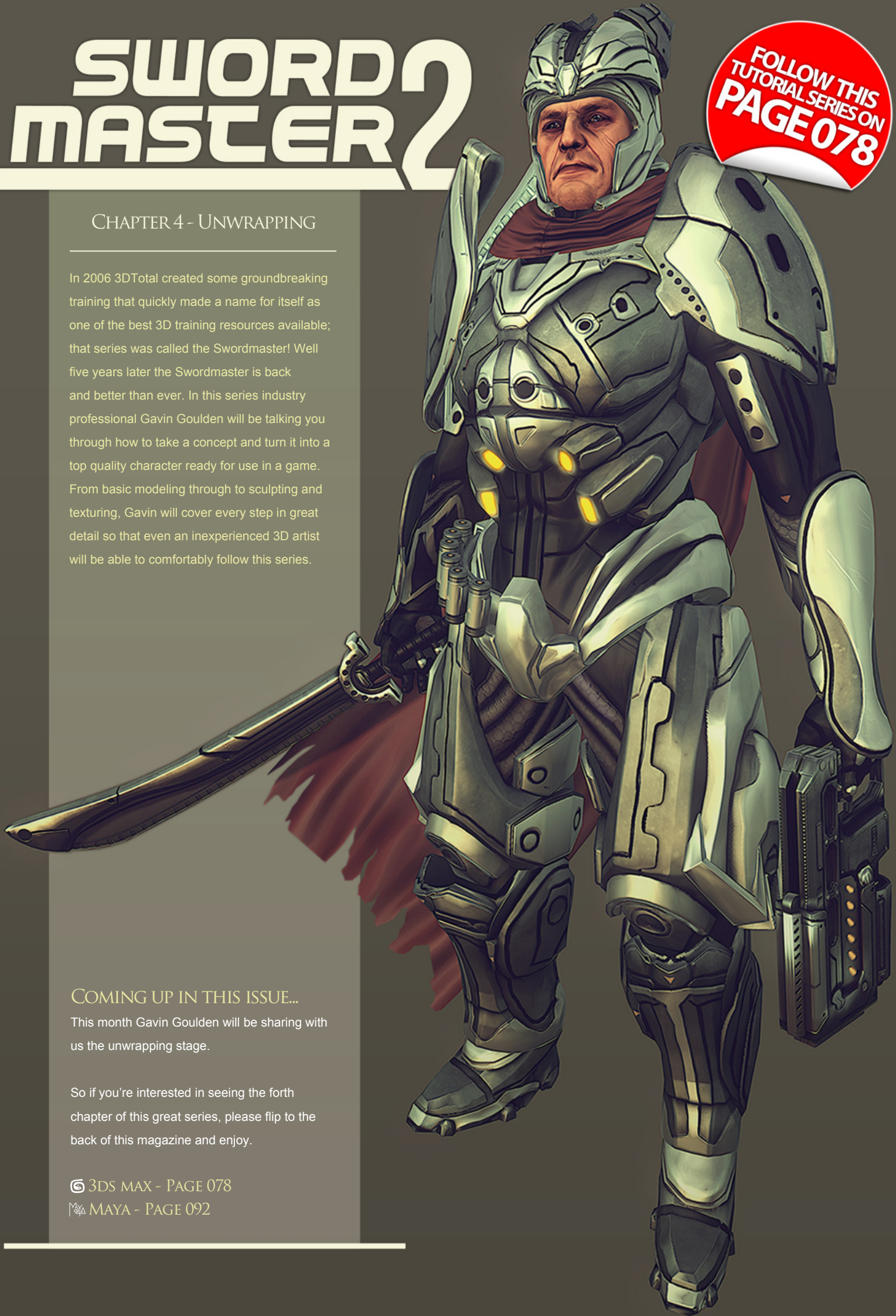
### COMING UP IN THIS ISSUE...

This month Gavin Goulden will be sharing with us the unwrapping stage.

So if you're interested in seeing the forth chapter of this great series, please flip to the back of this magazine and enjoy.

3DS MAX - PAGE 078

MAYA - PAGE 092





# CYBORGS

## MIXING 3D & PHOTOGRAPHY



Mixing 3D and photography is a real skill and you've probably seen it attempted with varying results. In this series Andrzej Sykut will be showing us how to achieve the perfect blend of 3D and photography with the coolest of subject: cyborgs. When approaching this task there is a lot to consider. Firstly you must think about the photograph and the lighting you want in your image, then you have to think about how you will create the 3D in the image, and once you have this you will need to create the same lighting on the 3D aspect as in the photograph... the list goes on and on. Tackling this without direction would be difficult, but with the help of these tutorials you can come up with some stunning results.

DECEMBER ISSUE 076 Chapter 01 | Human Hand | **THIS ISSUE** Chapter 02 | Sunglasses

**NEXT ISSUE** Chapter 03 | Power Plugs | **MARCH ISSUE 079** Chapter 04 | Spy Snail



## CHAPTER 02 – SUNGLASSES

Software used: 3ds Max

### INTRODUCTION

For this tutorial I wanted to try a workflow that only recently became possible. The task was to add a mechanical element to a photographed face. This can be approached in many ways, but all these ways have one thing in common: you have to match the camera and geometry. This is a hard thing to do and usually takes a lot of time. But does it have to? I think not.

Here is my idea. While shooting the base plate for the project, why not shoot a few more snaps, every 5-10 degrees around the head and feed them to the Autodesk Photo Scene Editor. If we do this, magic happens. We get a 3D model of the face with textures derived from the photos, and what's most awesome is that we get properly positioned and matched cameras for each snapshot, which means the whole job just became much, much easier to do. So let's take a look through the steps I used to achieve the final result.

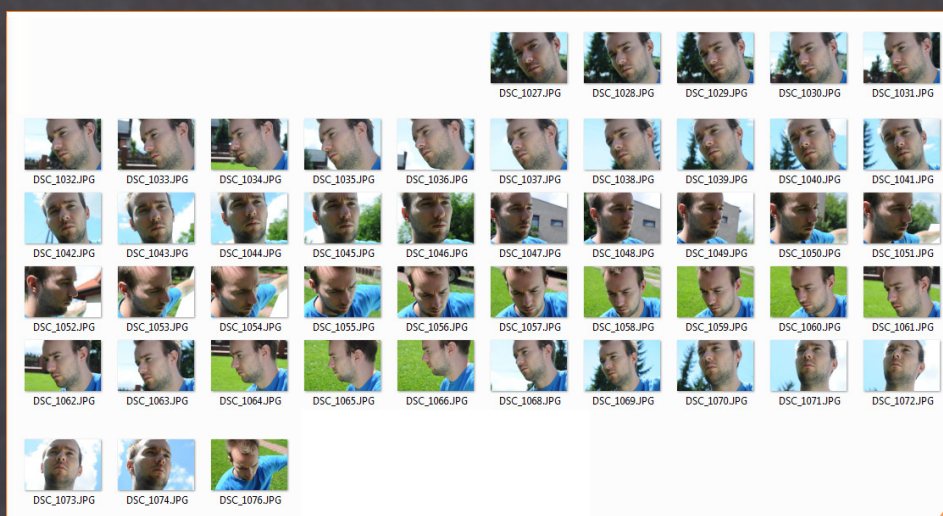
### CONCEPT PHASE

Since cyborg faces have been done to death I decided to try something not too glamorous, but maybe more usable in real life. Hence the glasses, as they present their own challenges due to refractions. Glasses do not make a cyborg, but some implants do. I struggled to come up with a decent looking idea for the implants, but in the end I think they turned out okay.

### SHOOT

I asked my brother to shoot the images of my face. We used a long lens to create a nice blur in the background. We also used a big piece of almost white styrofoam to serve as a reflector to fill in the shadows a bit.

As well as the main plate we shot more photos, moving the camera around my face in 5-15



01



02

degree increments. We also did the same from slightly higher and lower heights for more coverage. The trick for the model is not to blink or move; the photographer can blink all he wants! If you find photos where you have blinked afterward, just delete them. That's why it's good to capture a lot of photos, in case some are not usable (**Fig.01**).

Those additional photos are essential for 3D reconstruction of the face and camera position. Capturing them only takes a few minutes, but it saves you hours of camera matching and even more hours of modeling the subject's face. The

workflow I described initially should help you avoid these problems, but it is not guaranteed to work in every situation. If you are working with shiny, reflective items you are out of luck; the software doesn't really work with surfaces like that.

Another thing worth capturing is a HDRI environment. I did it the rough and dirty way, using four fisheye snaps with bracketing that I quickly stitched together manually in Photoshop. It's nowhere near perfect, but it will do the job. I also prepared a diffusely convoluted version for lighting purposes (**Fig.02**).



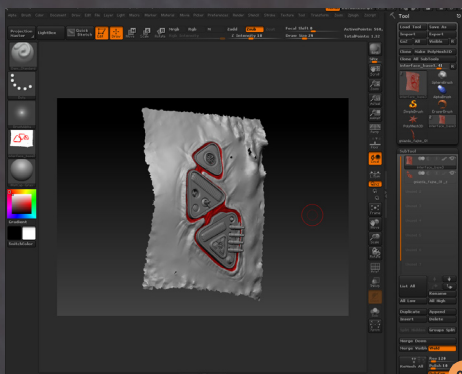


03

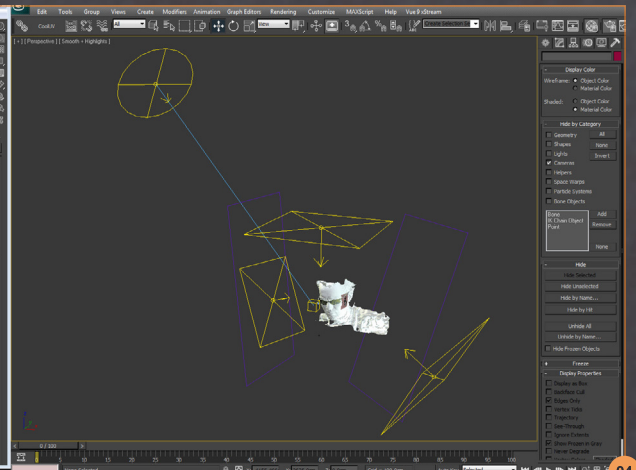
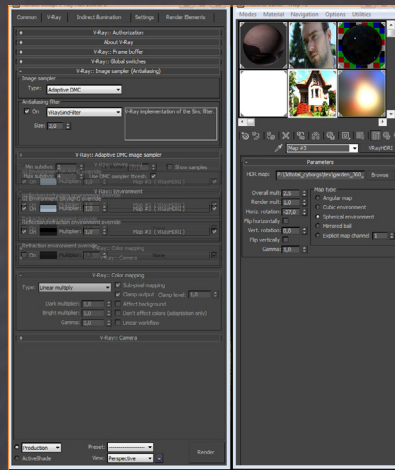
## RECONSTRUCTION

This part is simple. Open the software and upload the photos to the Autodesk Photo Scene Editor. Once the mesh is created, inspect the low res mesh. If you wait a little longer it will create a high res mesh as well, which should be exported as a FBX file (**Fig.03**). Simple, isn't it?

After importing the FBX into 3ds Max, rotate the whole scene so the face is orientated properly. This is mainly for convenience. Since the mesh is very dense, use the Optimize modifier (be careful though as it destroys UVs – ProOptimize may be a better choice) and clean it up a bit, removing unseen parts. Find your plate and use it to camera map the plate photo onto the geometry. You may ask, why not use the reconstructed UV textures? This would work in some cases, but not in this one. The reason is resolution and averaging. A 4K camera map will give sharper details than a 4K UV texture. That 4K texture is averaged from all those photos, which results in loss of detail. It's not a big deal except for on the eyes. It's hard to keep the eyes



05



04

exactly the same all the time, even if you were trying not to blink. All the little inconsistencies result in a blurred area where the eyes are supposed to be. The camera map solves the problem easily. The face uses a 100% self-illuminated material, and serves mostly to provide refractions, reflections and shadows, as well as some GI. In V-Ray the properties will be set to Matte Object and the Alpha to -1.0.

## LIGHTING/REFLECTION AND ENVIRONMENT RECONSTRUCTION

This part took a lot more manual work. I used 50% gray and glassy spheres as a visual aid and tried to roughly match the light positions and HDRI intensities. Simply slapping the HDRI into an environment map slot won't do. Use a V-Ray HDRI instead of a 3ds Max default bitmap; this works much better. The most important part is to type in the proper horizontal rotation. This is so the map is oriented correctly in relation to the face model. This is not an exact science, so do it by eye, and to make it easier display the environment in the viewport. Do that for both the reflection (the high resolution map) and illumination (diffusely convoluted, blurred-looking one). Then put them into the appropriate override slots in the V-Ray render settings. I played with the multiplier parameters right until final render, but these were all small tweaks.

HDRIs will provide the fill/environment lighting, but the sunlight needs to be simulated by a

direct light. I used a V-Ray Sun placed to match the position from the photo. It acts as a nice rim light. I also added a big area light to simulate my styrofoam reflector and one more from the top, just to accentuate the up-facing parts of the glasses. I also added one more rim light (**Fig.04**). The lights you choose will all depend on the photo you started with.

## MODELING

This phase is pretty quick. I based the design of the glasses on some modern sports eye wear and since they are simple it was a pretty straightforward job. One thing worth noting is the way I created the glass piece. I made a plane with a lot of divisions, drew the shape of the lens using a Spline and used Shape Merge to cut the plane to shape. Then I removed the outer polygons, did some cleaning up (Shape Merge is messy; it leaves a lot of vertices that can cause problems later) and used two Bend modifiers to give the lens a proper shape. I also used a Shell modifier to add some thickness. The rest of the glasses consist of simple box-modeled shapes.

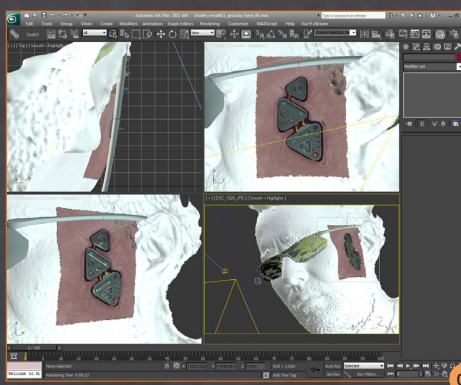
The implants were tricky. The basic mechanical shapes were done in Wings 3D and placed in 3ds Max. The area immediately around the implants had to be altered as well. I exported a piece of the head geometry to ZBrush and modeled some scarring, bruising, and generally mangled the skin a bit. I also used ZBrush for some basic texture layouts (**Fig.05**).



## SHADING

Since I didn't want the glasses to be perfectly clear, I prepared some dirty maps with fingerprints and all and used them in various channels of the shaders (Reflection Glossiness, Refraction Glossiness) and as a mask for another layer on top of everything. The glass itself uses Fog to tint it slightly. The nose piece is just a transparent material with lots of refraction glossiness and the side pieces are similar, but less glossy. They too use Fog, so they are not too transparent. It's all pretty simple, but took some time to get right.

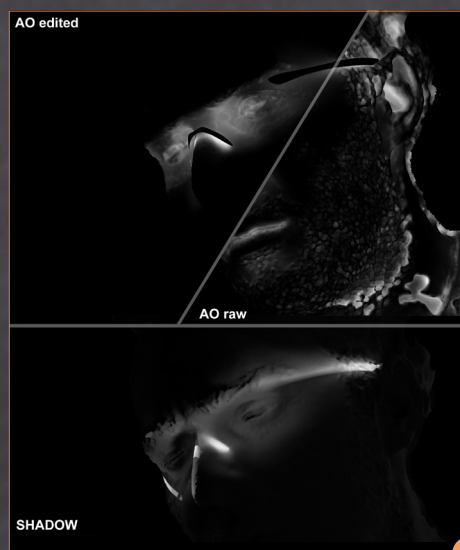
The implants used a metal and carbon fiber shader, plus some V-RayDirt here and there. The flesh around the implants is a bit more interesting. I used a VrayFastSSS2 shader with the Pink Skin preset, with custom textures for SSS color and bump (Fig.06). To add some detail to the flesh I used the Render Surface Map function and rendered Dust and Cavity maps. I also altered the scatter radius a bit, since the reconstructed scene is scaled differently from the real world. Actually, it was quite easy to match the skin to the photo.



## RENDERING AND COMPOSITING

I rendered the glasses and the implants separately as they were added in slightly different ways. As usual I rendered a Beauty pass and a few V-Ray passes (of which I only used the V-Ray Wire Color as a selection mask and the V-Ray Total Lighting to tweak the side-pieces a bit) plus a Shadow and AO pass. Both deserve some attention.

I rendered a black and white mask for the shadow of the glasses on the face and applied it to the plate before rendering the final images, so the shadow was taken into account when creating refractions. The way to apply the



shadow is not by multiplying it, but using it as a mask for curves and color correction. Multiplying it will produce horrible effects.

The AO was approached differently. I rendered the AO viewed through the glasses to be composited on top of everything. Again, this was to be used as a mask for color corrections.

Both passes were only used for the glasses and needed some cleaning up in Photoshop as the 3D geometry from the Autodesk Photo Scene Editor is somewhat messy in places (Fig.07).

Facial hair proved troublesome when compositing the implants. I had to remove a lot of hairs from underneath the 3D section. Fortunately the Spot Healing brush and the Healing brush tools in Photoshop made this part easy.

I usually render my images with Exponential color mapping, but this time I used Linear Multiply to preserve the real colors and brightness from the photo materials. It meant I had to be careful with light intensities (it is easy to get overblown whites), but it saved me a lot of color correction later on.

Compositing wasn't especially complex. There was a bit of masking, some color corrections, some blurring and adding some noise etc. The





rendered images fit quite well even before any alterations, especially on the flesh part. The implants needed to be brightened a bit to match the black levels. They also needed some hand-drawn soft masks so they blended well with the real skin (Fig.08).

Finally there were some overall enhancements like color correction, vignette, glows, that kind of thing. All of this was done in After Effects (Fig.09).

## ANDRZEJ SYKUT

For more from this artist visit:

<http://azazel.carbonmade.com/>

Or contact him at:

[eltazaar@gmail.com](mailto:eltazaar@gmail.com)



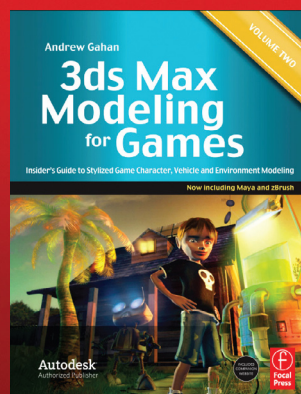
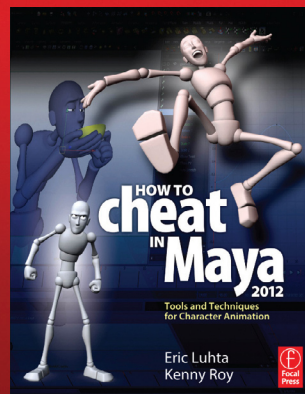
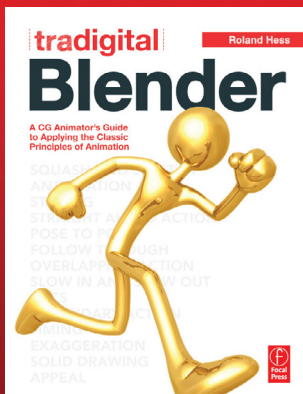






# New Books and Videos for your 3D toolkit

**FROM THE PUBLISHER OF DIGITAL ART MASTERS VOL. 2, 3, 4, 5  
AND DIGITAL PAINTING TECHNIQUES VOL. 1!**



**Video tutorials with over  
100 minutes of instruction  
from Andrew Gahan  
in each set!**



Visit [www.focalpress.com/animation](http://www.focalpress.com/animation) to view our entire selection of 3D and animation titles or sign-up for the focal animation e-newsletter that includes free content, discounts, free book drawings and more!



**Creativity has an endless shelf life.**

Focal Press books are available wherever fine books are sold or through your preferred online retailer.

[focalpress.com](http://focalpress.com)



# Add Vue 10 to Your Skillset

Learn this essential tool with the FREE Personal Learning Edition



Vue image by Kazuya Hashimoto (winner of the 3D Environment Competition 2011)



Vue image by Luigi Marini



Vue image by Thomas Godenrath



Vue image by Lutz Lehmann

## Solutions for Your Digital Nature

[www.Vue10.com](http://www.Vue10.com)



Vue for 3D Enthusiasts  
Starting from \$0 !



Vue for 3D Artists  
Starting from \$199



Professional Solutions  
Starting from \$995



Technologies for 3D Sky, Light & Nature



Vue



Carbon Scatter



Ozone



LumenRT





# ARMORED BEASTS

ZBrush is a formidable piece of software that is capable of so much. The possibilities are endless and the only restriction is your imagination. In this series our artists will be flexing their creative muscles to show us how to create not only the organic forms of their beasts, but also the non-organic forms that make up their armor and weaponry. Follow the creation process from initial concept through to final illustration and find out how to create some mind-blowing armored beasts!

THIS ISSUE Chapter 01 | Lizard    NEXT ISSUE Chapter 02 | Chicken    MARCH ISSUE 079 Chapter 03 | Bear  
APRIL ISSUE 080 Chapter 04 | Rhino    MAY ISSUE 081 Chapter 05 | Cat    JUNE ISSUE 082 Chapter 06 | Gorilla



## CHAPTER 01: LIZARD

Software used: ZBrush 4.0

Hi, my name is Bruno Câmara and over the next few pages I'll be explaining the process I used to create my lizard character. I hope you like it!

## THE IDEA

The main idea for this tutorial was to come up with an armored creature of some kind, so I decided to create a reptilian beast that lived a long time ago, in a fantasy kind of era where there were few resources and constant conflict. The beast wasn't very intelligent and basically lived by fighting for food. He was always one of the first on the battlefield and his armor wasn't particularly strong or thick because of the lack of resources and the fact that the lizards can't forge metal. It was basically made of things he found or collected from dead enemies.

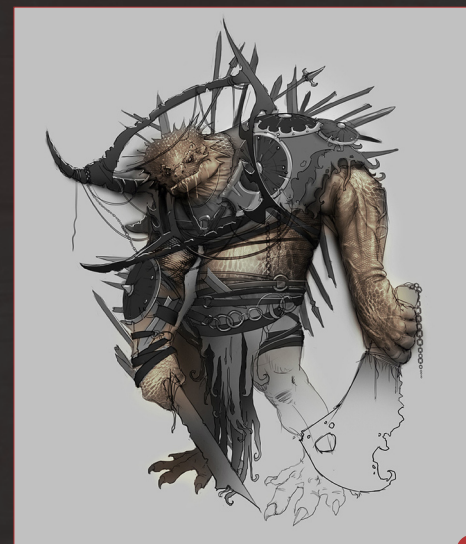


01



With this idea in my head I started to sketch some rough ideas (Fig.01). I created some messy silhouettes and then the character began to form out of these.

Generally the first sketches you make are the most cliché ones. The more options and variations you sketch, the more interesting and original they become. In Fig.02 you can see the option I chose as the concept for my character, which I then developed into the final concept shown in Fig.03.



02

03

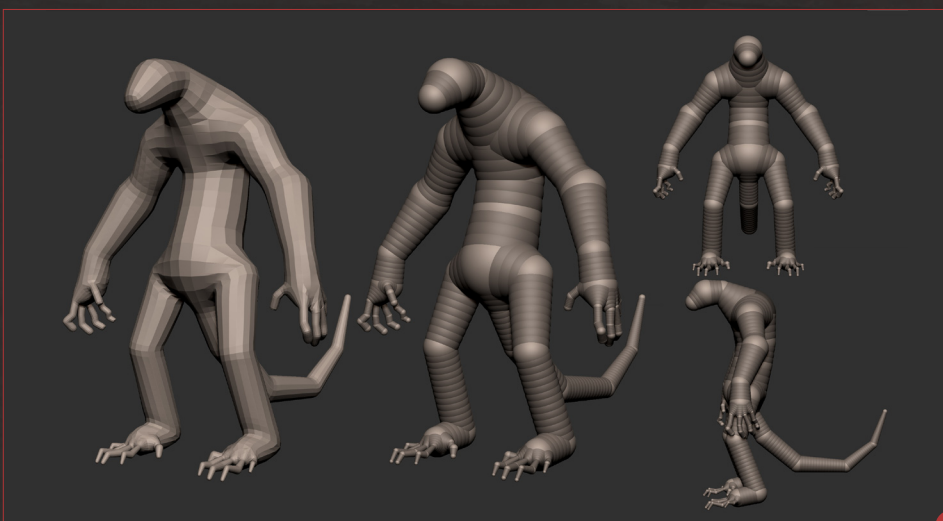


It is here that I defined everything. You don't need to do a detailed sketch or concept for your images, but getting some ideas down on paper may help. It helps me a great deal when I start the sculpting, as I already know what I plan to do and have things like scale and pose decided in advance. I always gather references at this point as well, as it helps sell the image and make it more accurate.

## MODELING

Then it was time to start the hard work. For the modeling I separated the character into three main parts: the head, body and props. Before anything else though, I started on the main base using ZSpheres (**Fig. 04**).

After building the structure I converted it to a mesh (Tool > Make PolyMesh 3D). I then started to define the proportions and general shape of the muscles (**Fig.05**).



04

## SCULPTING THE HEAD

On this mesh I had already defined the shapes of the head, but I hadn't detailed it yet so I did a simple retopology to have a better base to start from (**Fig.06**).

To make the retopology of any mesh, do the following:

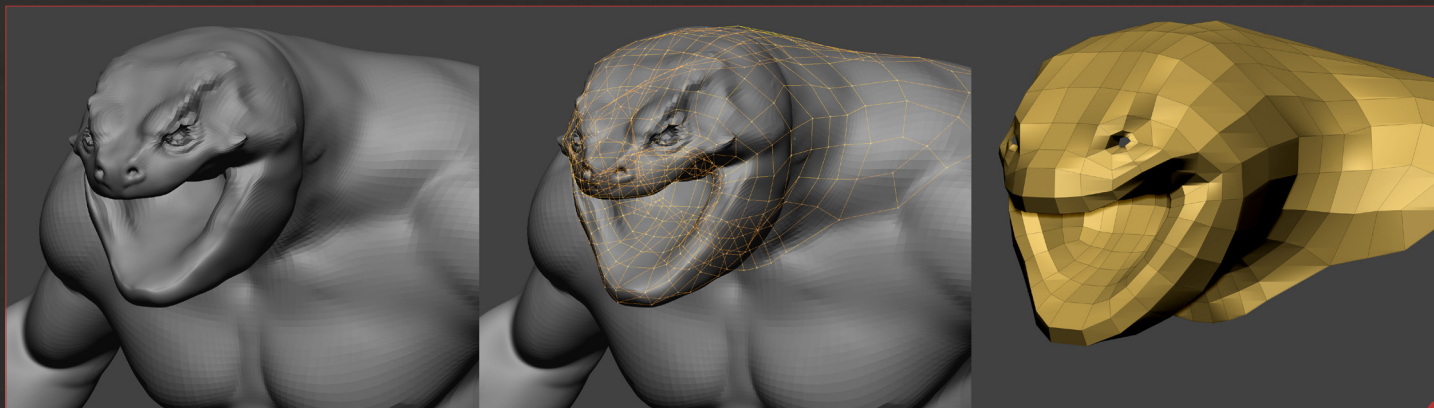
1. Create a ZSphere and hit Edit
2. In Tool > Rigging, click Select Mesh
3. Select the mesh you will use to create the new topology
4. Go to Tool > Topology > Edit Topology
5. Turn Symmetry on (if needed) and click on the model to begin creating new geometry
6. Press A to see the new mesh
7. When you are done, press Tool > Make PolyMesh 3D.

That's the process I used to make the new mesh for the head. This new mesh had some basic edge loops for a better flow and easy detailing in the future. Once the new topology was done I started to detail the head using a reference of a blue-tongued lizard and a Komodo dragon to help me.

The first one stands out among all other lizards because of his nice body texture and weird tongue. Since my armored lizard was going



05



06

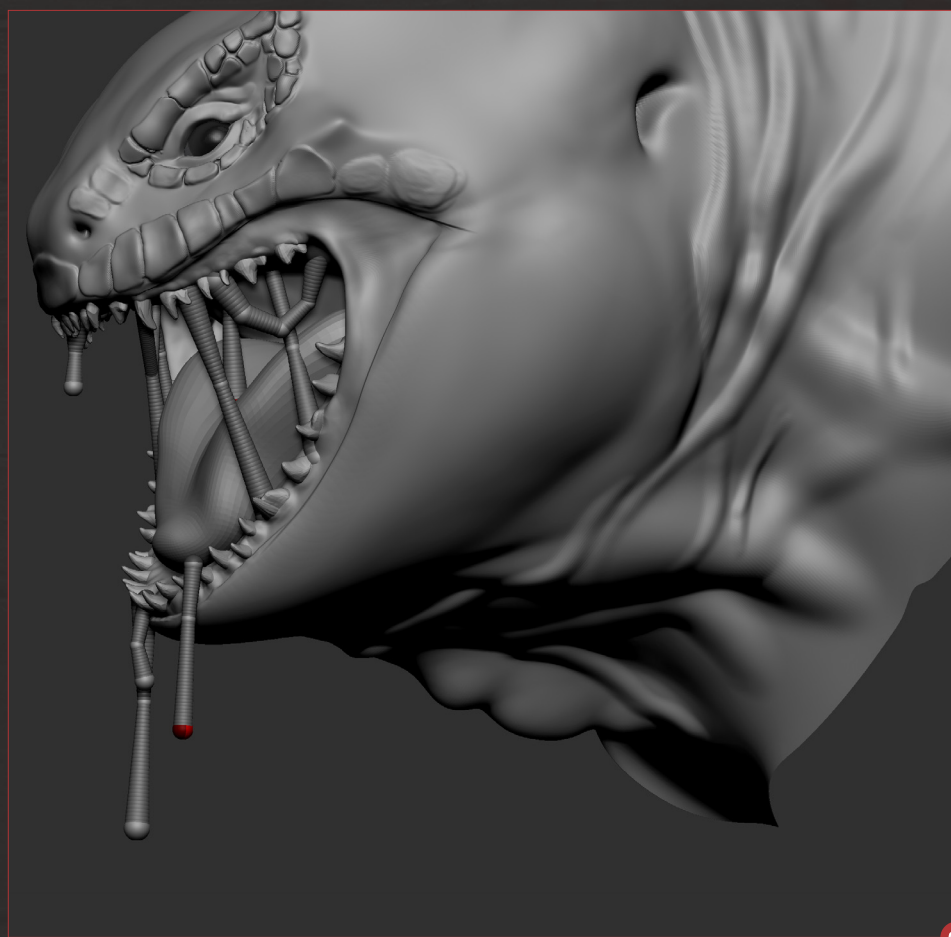
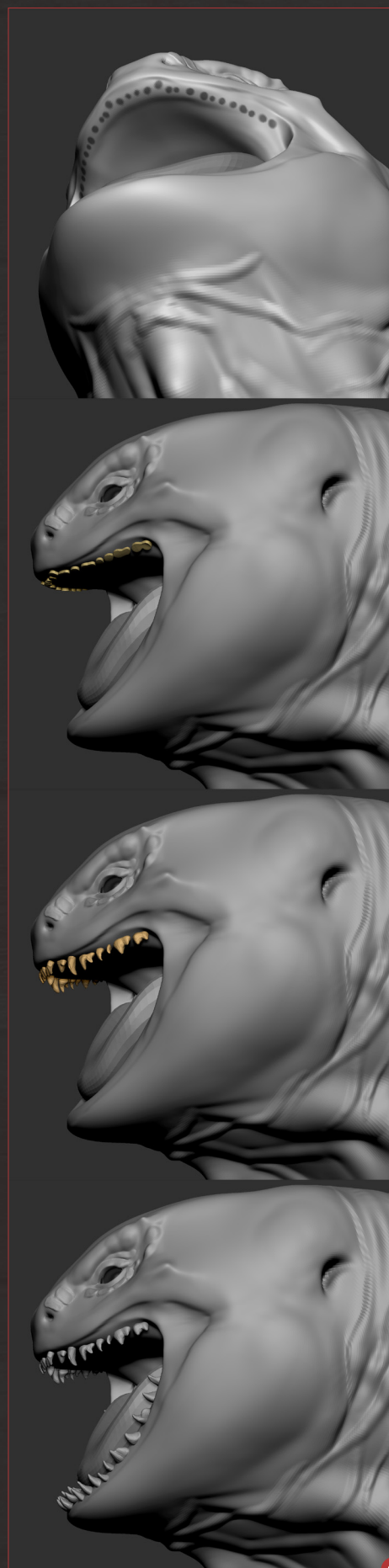
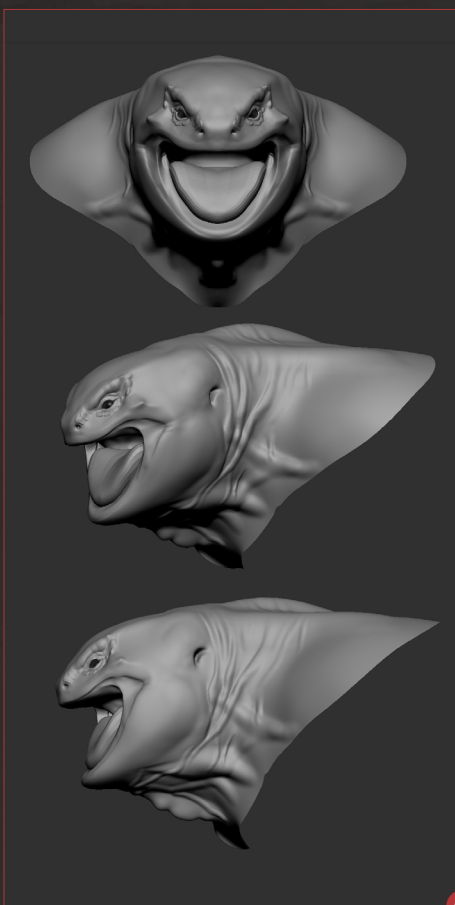


to be huge, at three or four times the size of a human, his skin would be more like a Komodo dragon's or a dinosaur's than a little lizard. Other references were used too, like iguanas and other lizards.

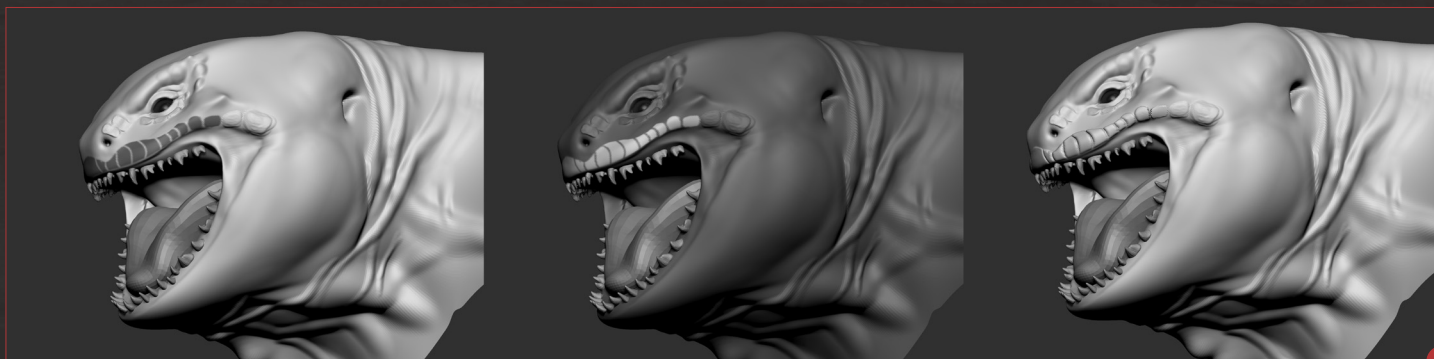
After gathering several references, I also downloaded several alphas related to lizard skin. You can find great alphas on Pixologic's website.

I started defining the main muscles on the head and neck and the folds of skin. I then moved on to the gums and tongue (**Fig.07**). The eyes were a simple Sphere3D object and the tongue was made from ZSpheres.

To make the teeth I masked the position of the teeth on the gums and used Extract to create a new subtool. Then using the Inflat tool and the Pinch brushes, I pulled and shaped each tooth (**Fig.08**). Like the tongue, the drool was also made from ZSpheres (**Fig.09**).







10

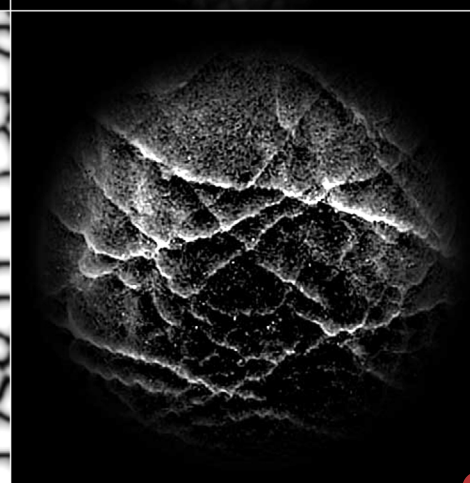
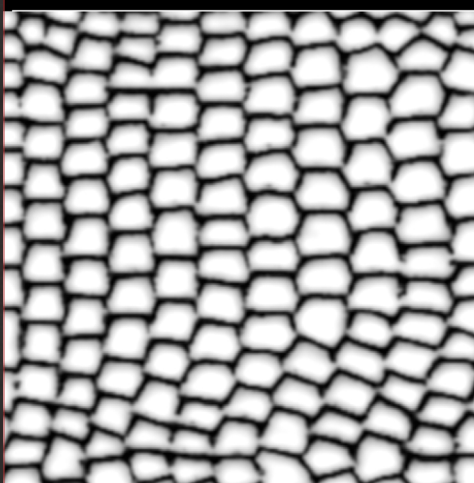
Finally I detailed the scales around the mouth and eyes manually. Basically I masked the mouth region where the scales would be, inverted the mask and used a combination of the Standard brush and Inflat brush to highlight the scales (**Fig.10**). I used this process for the major scales; the others I did with skin alphas (**Fig.11**).

I didn't spend much time on the shoulders as they were going to be hidden behind the leather clothes. In **Fig.12** you can see the completed head.

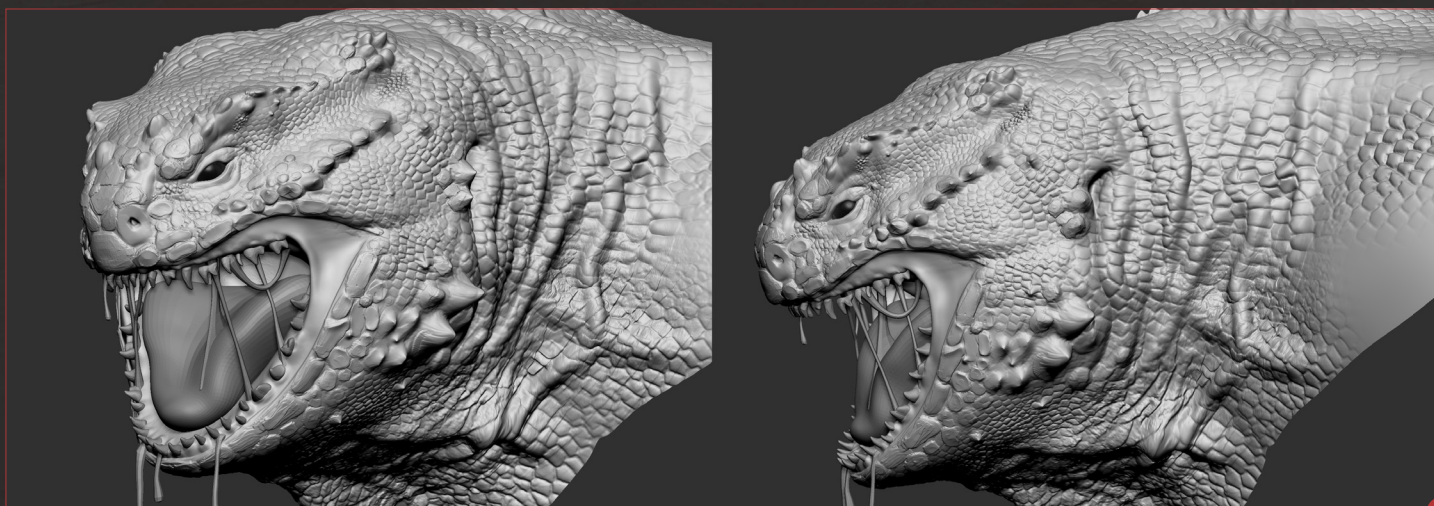
## DETAILING THE BODY

The lizard's body demanded a mixture of human and lizard anatomy. To tackle this I collected as many references of human muscles and lizards as possible. I tried to create a strong body that looked balanced enough to carry the weight of the armor.

As I had already modeled a base for the body, I used it to begin to define the muscles of the

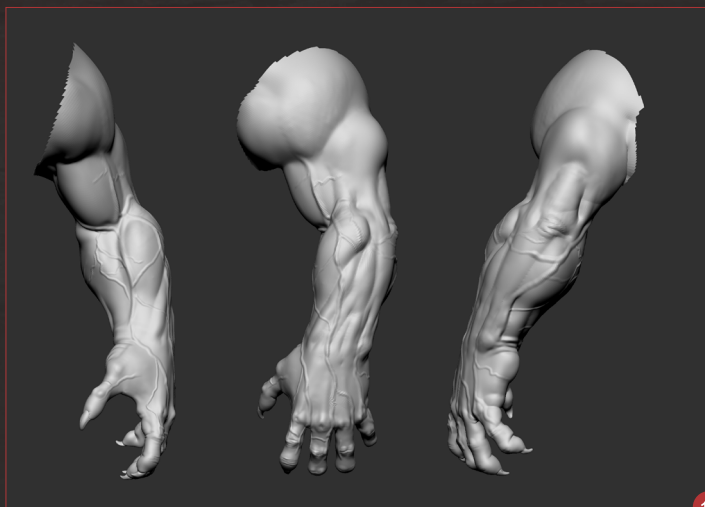


11



12

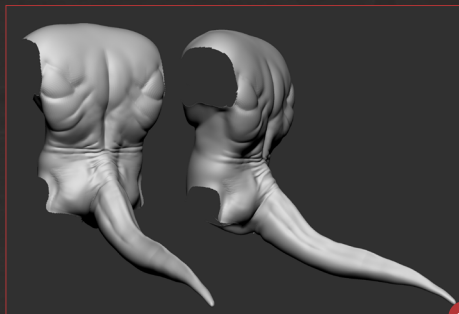




13



14

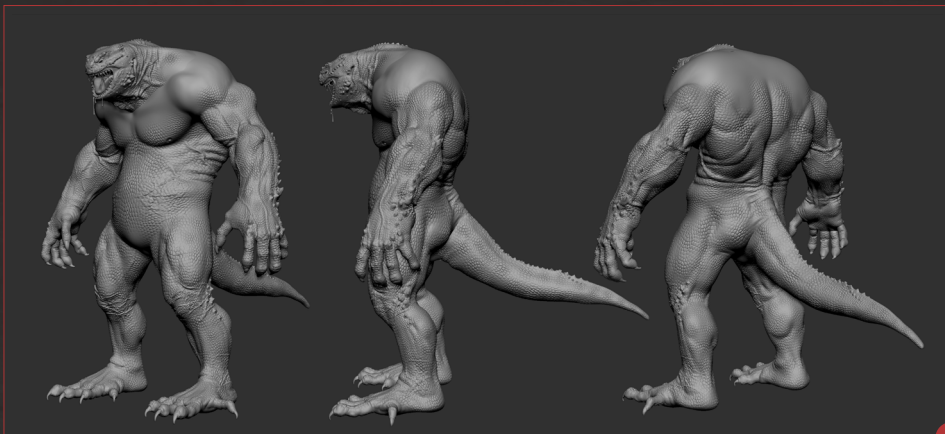


15

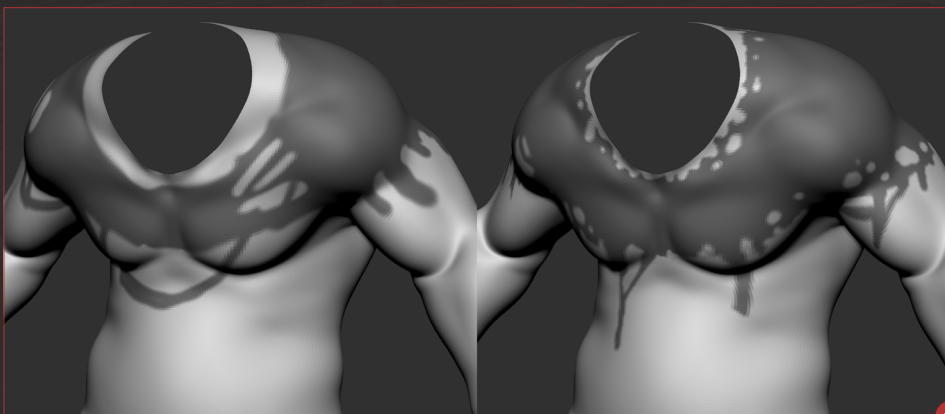
limbs, but before I did that I deleted all of the head geometry as it was no longer necessary. I started with the arms and hands, and defined the muscles and veins (**Fig.13**). I then moved on to the legs (**Fig.14**), and finally the torso and tail (**Fig.15**). Some parts were not detailed as they were going to be covered by cloth and armor.

For the scales I used the same process as I did for the head. I manually modeled the main parts like the elbow and joints. For the rest I used a lot of alphas and adjusted any problems that arose.

The final body can be seen in **Fig.16**. At this point I had seven subtools: the head, body, eyes, tongue, drool, upper teeth and lower teeth.



16



17

Ctrl key pressed, I masked the rags of leather that I wanted to extract (**Fig.17**).

bit with the Move brush, to make them fall on the body, simulating gravity. I created three different rags of leather for the torso (**Fig.18**).

## MODELING THE PROPS

There are several props on this character. I divided them into five different parts and created them in this order: cloth, armor, shield, leather straps and weapons. For both parts of cloth I used Extract (Tools > Subtool > Extract). Extract is just great and really speeds up the workflow. At the lowest level of subdivision and with the

Once they were masked I clicked Extract. I set the parameters for Edge Smoothness to 0, Surface Smoothness to 0 and Thickness to 0.3. Depending on the model you make these values may vary. After extracting them I softened the edges of the extracted model manually, so I could have a better range of smoothness. It was necessary to separate the cloth from the body a



18



For the lower clothes I had to extract a base geometry and mask over it to make out the final cloth. I created two rags (Fig.19).

## THE ARMOR

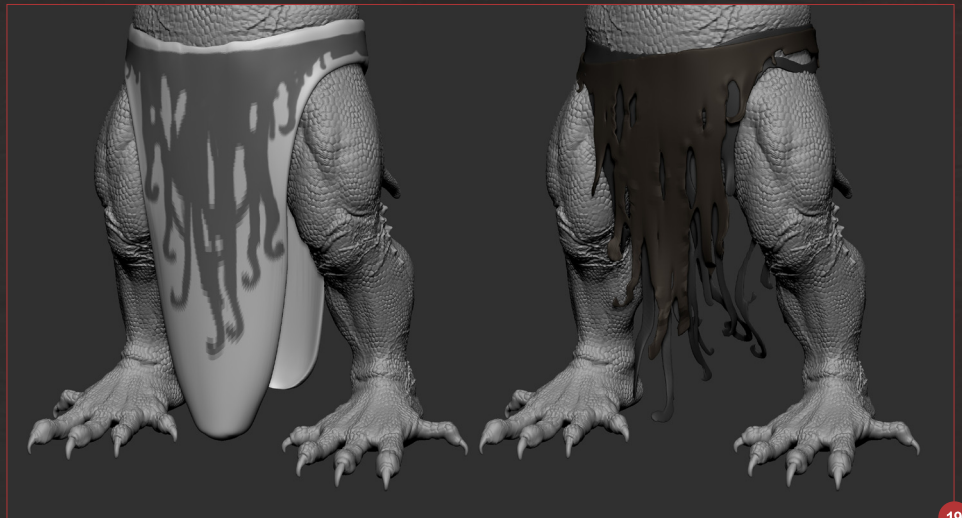
I thought this metal armor would be useful as the lizard would have to defend against frontal attacks. It would be very old and worn, with pieces of chains and wires around. The fastest way to create it was with ZBrush's ShadowBox.

This is the quickest way to model using ShadowBox:

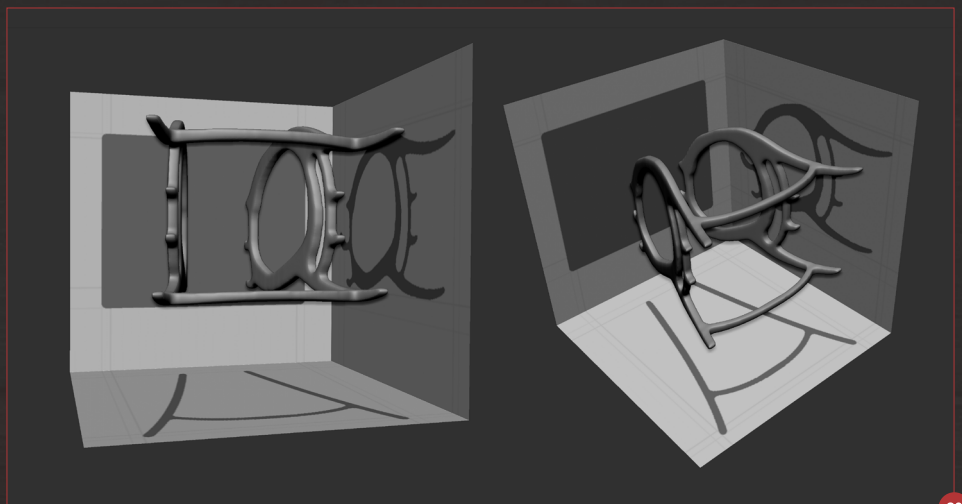
1. Create a Sphere (Sphered3D primitive) and tap the T key to edit
2. Click Tool > Make PolyMesh3D to transform it from a primitive to polymesh
3. Now click Tool > Subtool > ShadowBox
4. Hold Ctrl and click and drag on the canvas to clear the mask and erase the sphere
5. Now you have what you need to start working in ShadowBox.

With a resolution of 300 for ShadowBox (ReMesh Resolution parameter) and the X axis symmetry turned on, I drew the mask to generate the armor's base (Fig.20).

It's even better to build props like this to the correct scale (Fig.21). Simple as that! Now the base of the armor was ready to be detailed. I started bending the armor with the Move brush



19

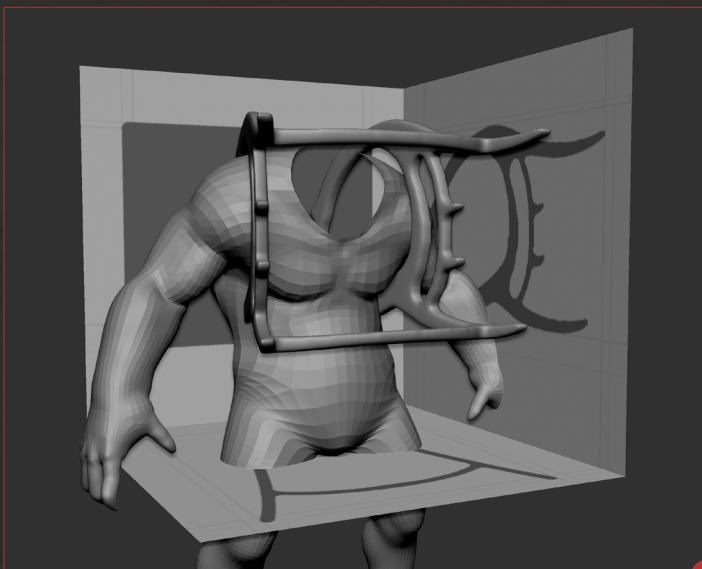


20

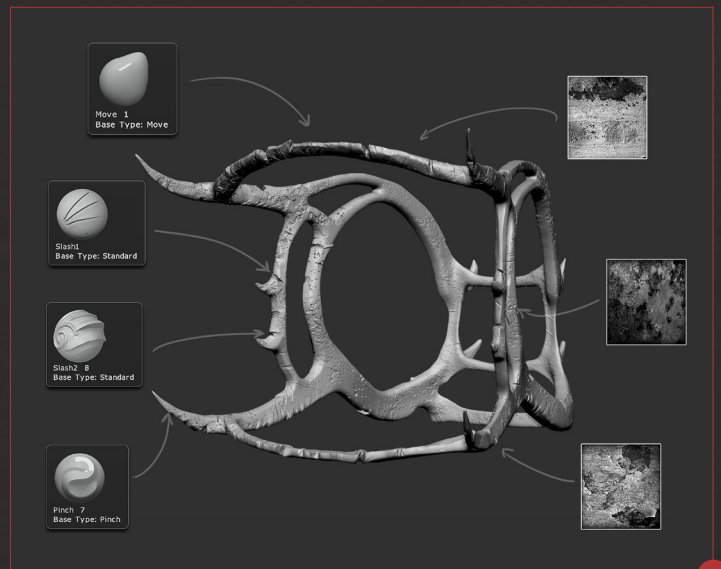
to improve the curvature. Then with the Slash1 and Slash2 brushes I made marks all over it as if it had been involved in plenty of wars. Another great tool I used was the Polish brush, which allowed me to flatten some areas.

After this I used some metal alphas for minor details, such as rust and wear and tear (Fig.22).

With the armature complete, I moved on to modeling the wires and chains hanging from it.



21



22



Ring3D Primitive



23

For the wires I used ZSpheres, which I patiently rolled one by one until I had the correct thickness. For the chains I used a Ring3D primitive. I modified it until I had the shape of a chain's ring and multiplied it until I had the length I required for my chain. Using the Subtool Master plugin I merged the rings to create a single object (Fig.23).

Using Transpose to move and rotate, I positioned the chains just like the concept and, using the Move brush, I bent them to give them a sense of movement. You can see the finished piece of armor in Fig.24.

## SHIELD

For the lizard I created three different shields. One of them is the medusa shield. I started in ShadowBox by creating the basic shape (Fig. 25). After the mesh was generated I used the MatchMaker brush to get the contours of the cylinder. This new brush is perfect when making one surface conform to the contours of another.

To use the MatchMaker brush do the following:

1. Tool > Subtool (this should already contain the object you want to deform) click Append and choose the object to use as the contour

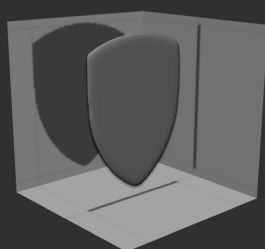


24

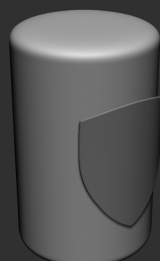
2. Now you have two subtools: the main one and the reference for the contour
3. Position the reference object below the object to be deformed
4. With the main one selected, choose the MatchMaker brush in the brush palette
5. Click the center of the object and drag; now the object will deform in accordance with the object underneath.

After getting the contour of the cylinder I subdivided the shield a couple of times, turned on Symmetry and started sculpting the Medusa's face. For the snakes I masked their shape on the mesh and used the Inflat brush to pull them out. For the ornaments I used the Stitch brush with a round alpha and modeled some screws around the border. Finally I destroyed the shield using the ClayTubes and Slash1 brushes.

25



1 - ShadowBox



2 - MatchMaker Brush



3 - Face Sculpt

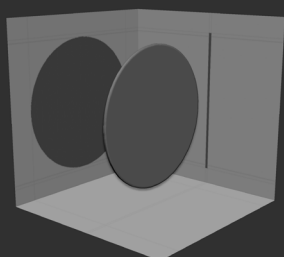


4 - Ornaments

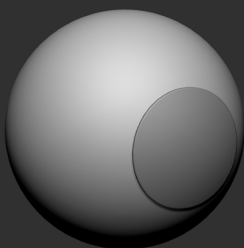


5 - Destroy





1 - ShadowBox



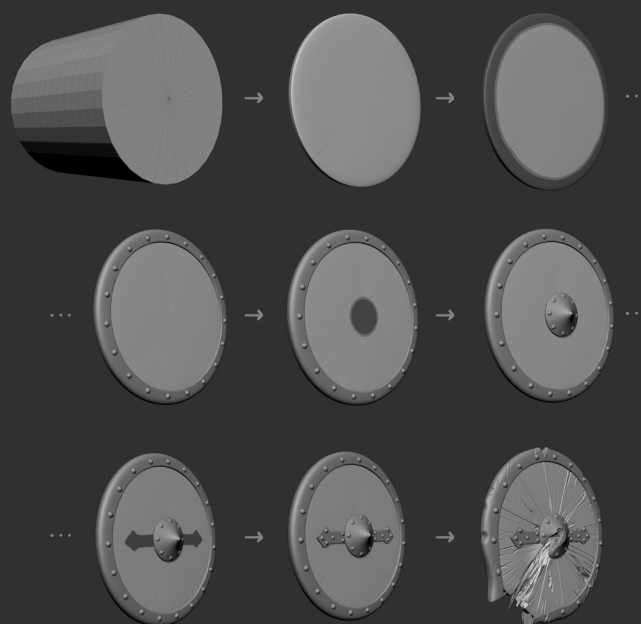
2 - MatchMaker Brush



3 - Ornaments



4 - Destroy



26

27



28

To create another shield I used the same process as I did on the previous one, only I changed the format and used a sphere as the contour (Fig.26).

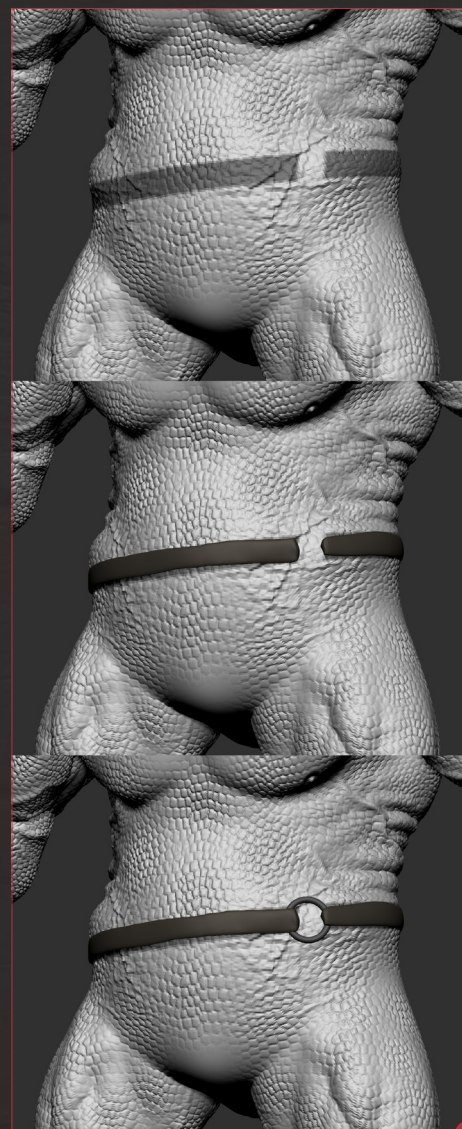
For the third shield I basically used Extract to create each of the pieces. From a cylinder I created a disk and subdivided it to be the wood part. Then one by one I masked the edge, center and arrow-shape, and used the Extract (Tool > Subtool > Extract) to create the metal parts. I then detailed the piece of wood and

metal with screws and creases, and made them old and broken (Fig.27).

I then placed the shields and created more wires with ZSpheres to tie them to the body (Fig.28).

## LEATHER STRAPS

I modeled the leather straps using Extract to match the concept. I masked around the body and limbs, but erased a small piece where I could connect the loop with a Ring3D primitive (Fig.29).



29



I repeated this a few times until I had this (Fig.30).

## WEAPONS

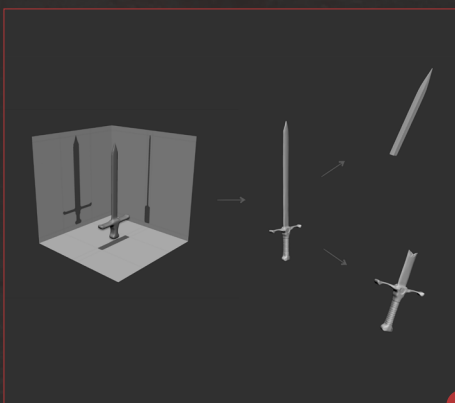
There are many weapons on this character, consisting of the secondary ones that hang on him and the main one he uses to attack. The secondaries are the remains of weapons, swords and broken spears of past battles. For the swords I made one complete sword and from it created some variations. I used ShadowBox to create the base mesh (Fig.31) and used Symmetry to create them. Once they were made I used the Move and Polish brushes to detail them. I created variations using clipping brushes to break them into different parts.



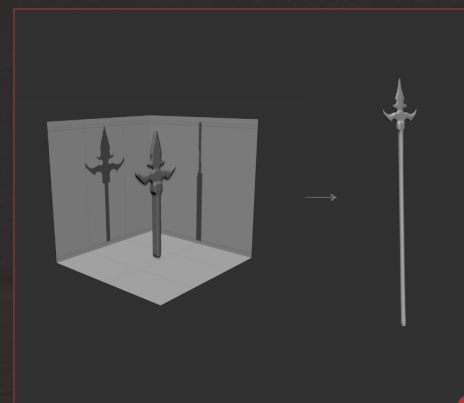
30

To cut any object in ZBrush using Clipping brushes, do the following:

1. With your object on the screen and in Edit mode (T key) hold Ctrl + Shift.
2. The Brush and Stroke palettes have now changed. Choose a Clipping brush like ClipCurv and a stroke, like Curve.
3. Still holding Ctrl + Shift, click and drag to start drawing the cut.
4. To make a curve just tap the Alt key. When you have finished, release Ctrl + Shift to cut the mesh.



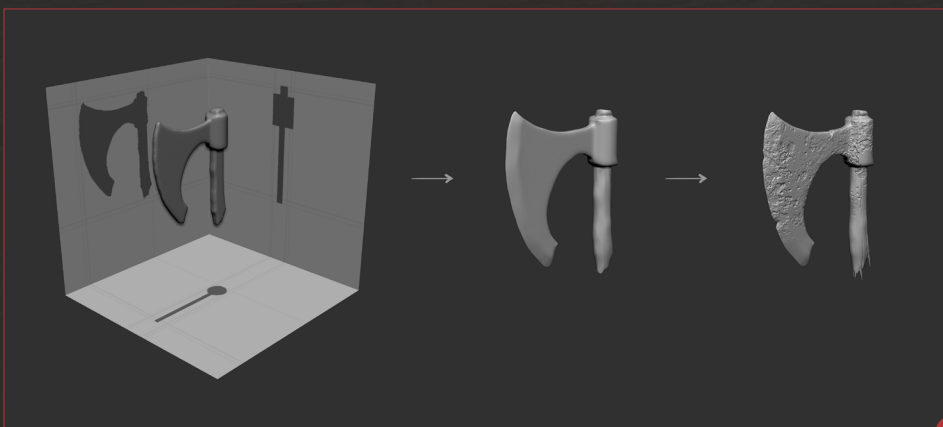
31



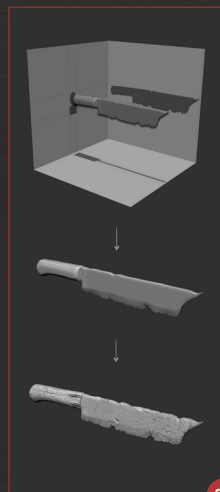
32

I used the same method for the spear (Fig.32).

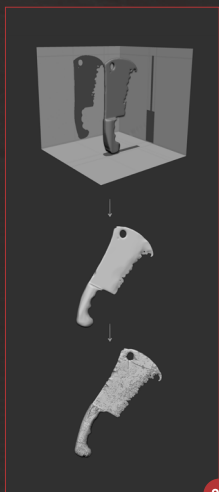
There is also a broken axe, which again I created by using the same method as before.



33



34



35

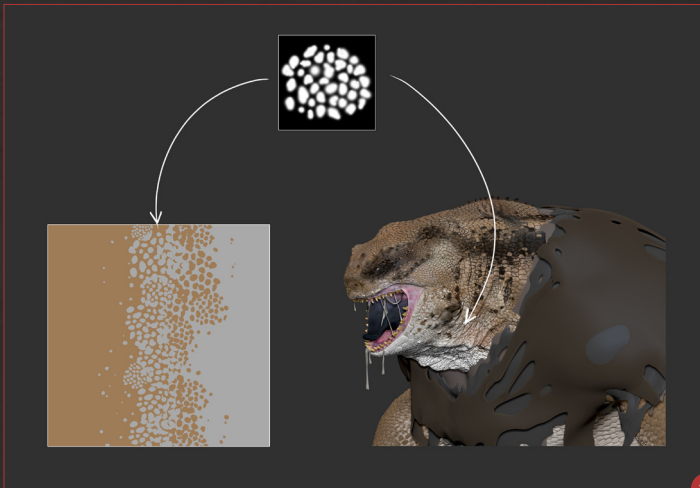
The blade and the handle are the same mesh. The Polish brush was essential here to make the details really sharp. I also used rusty metal alphas to make it look worn (Fig.33).

The other main weapons are a machete and a cleaver. These were all created in the same way (Fig.34 – 35).

## TEXTURING AND POSING

With the hard work done it was time to put some color on the character. As the head and body were different subtools, I focused on finishing the texture of the head to give the final look for the body. I started by filling the head of the lizard with a yellow tone, which also complied with the main reference of the blue-tongued





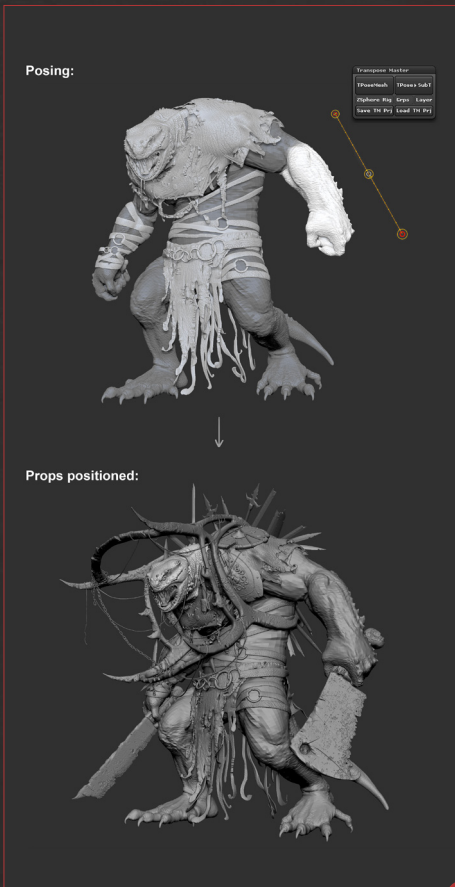
36

lizard. I then used a lighter tone for areas like under his chin and chest. I like to use an alpha for the transition of tones to match the texture of the skin (Fig.36). In this case I chose to use a scales alpha.

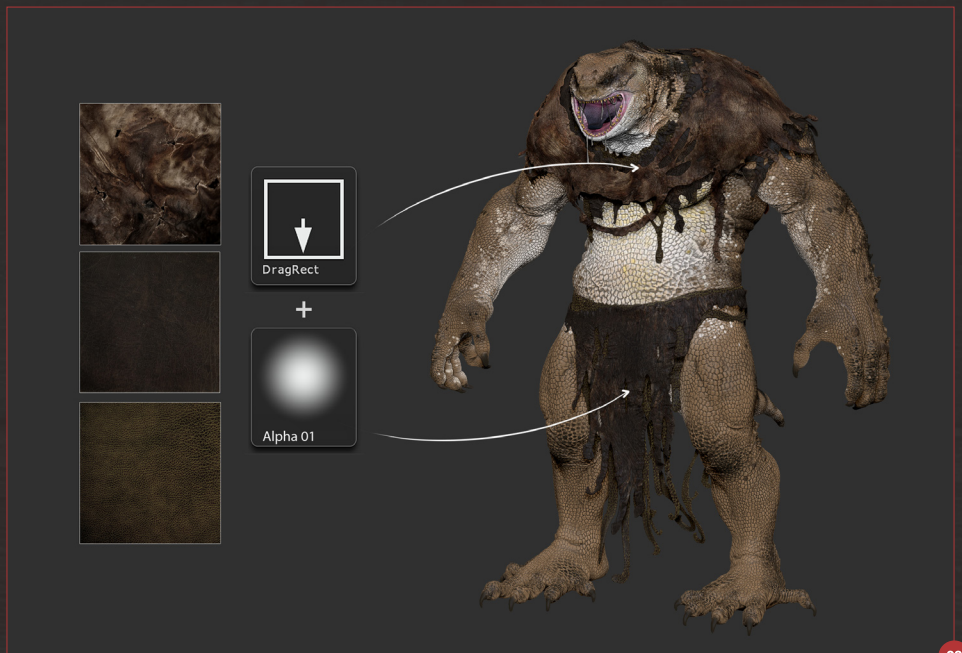
With the Standard brush and FreeHand stroke I added some dark stripes at the beginning of the back, as they were on the reference. I also polypainted some more random scales of the same color on the stripes. For the tongue and



37



39



38

teeth I used several references of human teeth and the mouths of some lizards like the Komodo dragon.

For the eyes I used the DragRect stroke. I projected a picture of a chameleon's eye as I found them much more expressive than other lizards. For the drool I used a reference image of a Komodo dragon, which has very thick and white drool. After the head was ready and the final look was okay, I painted the body in the same style. The final body can be seen in Fig.37.

For the cloth I used different images and leather tones that had been treated in Photoshop. Using the DragRect stroke and Alpha 01 I projected the images onto the sculpt (Fig.38).

Before proceeding with the texture I broke the symmetry and posed the character. For the pose I tried to follow the concept, but with some differences in the pose of the limbs to create a better silhouette. I deleted hard objects such as the armor and shields, and used the Transpose Master to pose him (Fig.39).

Once I was happy with the silhouette, I started to place the props and used the Transpose Masters to make it all work together. This part took some time because of the large amount of props. I also had to be careful to make sure no parts intersected with each other.

With the pose ready, I continued to finish the texturing. I used the same texture for the leather



straps, varying the tones between them, and I also applied some metal textures to the rings (Fig.40).

The next step was to polypaint the armor and wires. I searched for textures such as rusted metal and rope wires, and applied them with the DragRect stroke tool. For both I used a darker version of the textures to vary the tone in some areas.

For the shields I basically just used metal matcaps, which are freely available on the Pixologic website (<http://www.pixologic.com/zbrush/downloadcenter/library/>). On the website, under the option MATCAP METAL, I downloaded Deep Bronze, Rusted Gray and Worn Silver Metals (Fig.41).

The only texture I used was for the wooden part of the shield. For Medusa's shield I used two matcaps: the deep bronze for the Medusa's

face and the rusted gray metal for the rest.

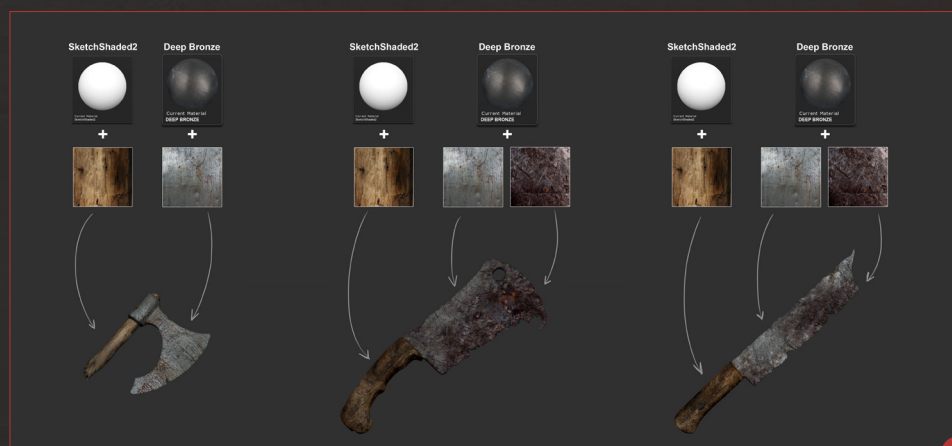
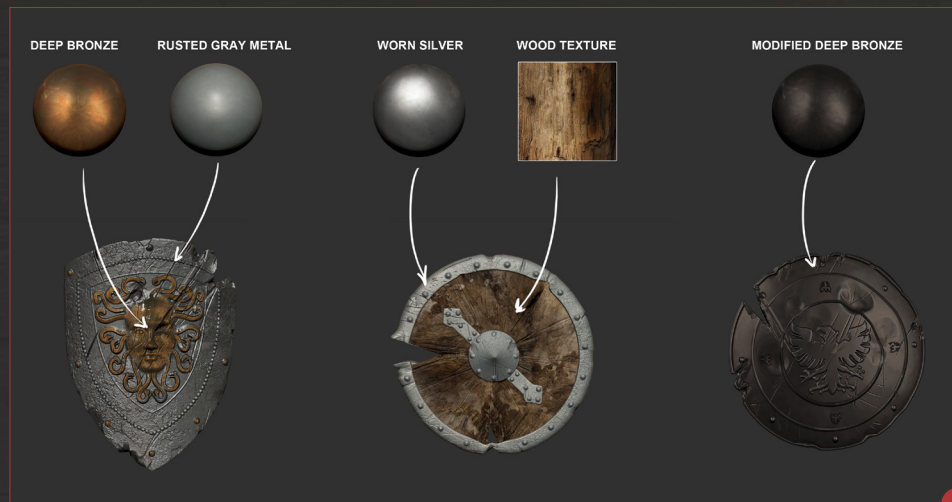
I didn't use a texture here. For the wooden shield I applied the worn silver matcap for the metal part, and a wood texture for the middle.

Finally for the round shield I modified the deep bronze matcap (Material > Modifiers) to a darker version and applied it.

## WEAPONS

For the secondary weapons on his back I used a single material. Maybe I should have used some variation of hue to achieve a better look. Again the deep bronze matcap was changed to a grayer version, like steel. This matcap is great because it creates a sense of texture. It darkens the cavities and highlights the bumps so the weapons have a very old look (Fig.42).

For the main weapons I also used a modified matcap for the metal parts. I used the SketchShaded2 matcap for the wood, along with a few textures (Fig.43).



And that's it. The texturing process was now finished and it was time for my PC to work on the render passes.

## RENDERING

For the final image I wanted a very dark mood, with low light, as if he were in a cave. Nine render passes were used: Color Pass, Ambient



Occlusion, Main Light, Specular, Right Rim Light, Left Rim Light, Depth of Field, Mask and a SSS pass (Fig. 44).

Before rendering all the passes I saved a view using ZApplink (Document > ZApplink Properties). This was to ensure that all the passes would be rendered at the same angle. I also applied a black background to all the passes and increased the FocalAngle to 140 (Draw > FocalAngle) to give more depth to the scene.

## COLOR PASS

The first pass I exported was the Color pass, which is where all the colors were. To do this I simply applied the Flat Color Standard material to the entire scene. By just using this material, I would have lost the metal shaders, so I kept the matcaps of the weapons and all metal parts by going to Color > Fill Object, with only the M (Material Channel) button on (Fig.45).

## AMBIENT OCCLUSION

For the Ambient Occlusion I also used the Flat Color Standard material, but with all the textures and polypaints off. To turn off the materials and textures of all the subtools, go to Tool > Subtool,

hold Shift and click on the brush-shaped icon. Now you can use any color or matcap. Regarding the parameters in the Render palette,

I only put the AO Occlusion button on and in Render > BPR AO, I used the following values:

- Strength: 1
- Rays: 100
- Res: 4000
- Angle: 360
- Blur: 2
- VDepth: 0
- LDepth: -1
- Gamma: 3

And that's it. The resulting image is in Fig.46. Then in Photoshop I used Levels to highlight a few details.

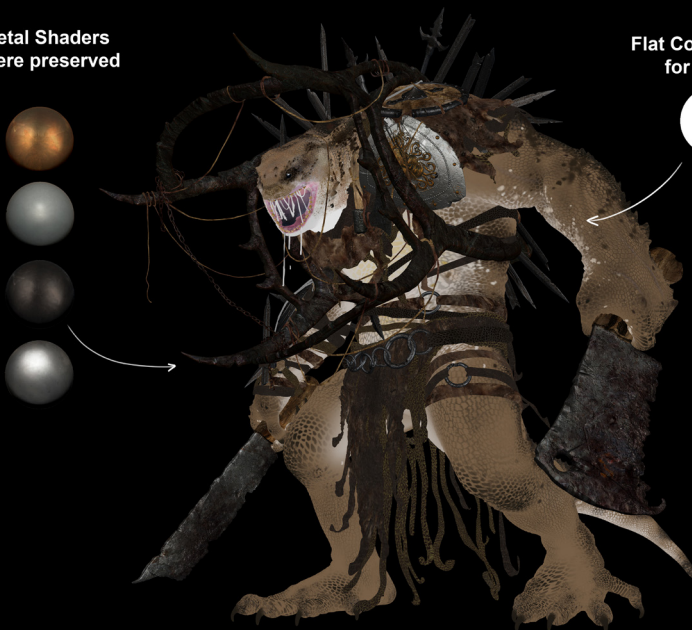


44

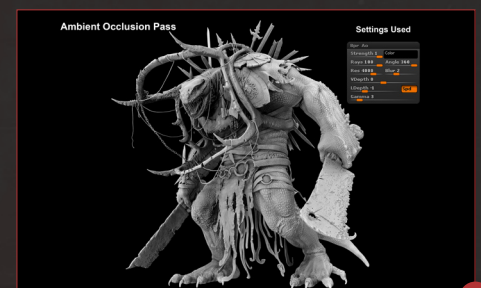
### Color Pass

Metal Shaders were preserved

Flat Color material for the rest



45



46



Main Light Pass



47

Specular Pass



48

## MAIN LIGHT

The Main Light pass was a simple sun light coming from the right. I used a white light so I could change the color in Photoshop at will. I set Intensity to 0.7, Ambient to 0 and the BasicMaterial as a matcap.

I turned Shadows on in the Render palette and the BPR Shadows option and set them like this:

- Strength: 1
- Rays: 100
- Res: 4000
- Angle: 20
- Blur: 6
- VDepth: 0
- LDepth: -1

I clicked the BPR button and made the Main Light pass (Fig.47).

## SPECULAR PASS

For the Specular pass I used the ReflectedMap matcap and in Material > Modifiers I set Ambient and Diffuse to 0 and also adjusted the specular curve based on references. For the light I used the same position and the same parameters as I'd used for the Main Light pass, and hit BPR (Fig.48).

## LEFT AND RIGHT RIM LIGHTS

For these two passes I used the same parameters as the Main Light pass. The

Left Rim Light

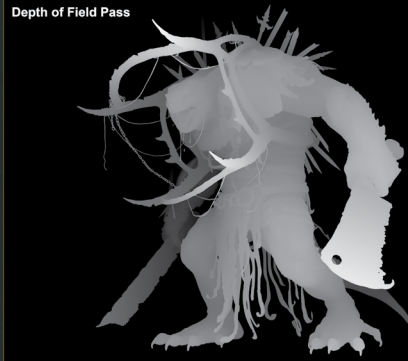


Right Rim Light



49

Depth of Field Pass



Mask Pass



50

difference is that the light source was behind the object. To do this I simply double-clicked on the point of light in the Light palette. I also increased Intensity to 2, because it gets weaker when it's behind the object. I made some adjustments in Photoshop to highlight these rim lights even more (Fig.49).

## DEPTH OF FIELD AND MASK

These two passes were created simultaneously using the Create Maps button (Render > Create Maps). This can generate the main image, Depth of Field, Shadow, Ambient Occlusion and

Mask at the same time if you want it to. I used the same parameters for the Fog tab as I did in the Depth of Field tab (Depth Cue). This way I could see in real-time how the depth of field would blur the final image.

The Depth Cue parameters were as follows:

- Intensity: 100
- Softness: 4
- Depth 1: -0.22
- Depth 2: 0.16

With the Create Maps button enabled, I clicked BPR and created these two passes (Fig.50).



## SSS Pass



51

### SSS

For Subsurface Scattering I used the DoubleShade1 matcap. In Material > Modifiers, for both the S1 and S2 slots, I set Specular to 0. In Tool > Subtool I hid all the objects except the head, body and drool and I turned off the brush-shaped icon to disable the polypainted textures. I chose a reddish color as the main color and in the Light palette double-clicked on the point of light to put it behind the character. I then set Intensity to 2, Ambient to 0 and turned on SSS. Finally, in the Render palette, I also enabled Shadows and SSS. I pressed the BPR button and the SSS pass was ready (**Fig.51**). I adjusted this slightly with Levels in Photoshop.

### FINAL COMPOSITION

Finally we have reached the last part of this tutorial. Now all I needed to do was assemble all

the render passes in Photoshop. **Fig.52** shows all the passes in order of assembly. I started by opening the Color pass of the character and applied the Occlusion pass using it in Multiply layer mode.

I then applied the Main Light pass, which was given a yellow tint in Photoshop using Hue and Saturation. This was applied using the Soft Light layer option.

The Specular pass was then added in Screen mode. In this pass I deleted some areas such as on the pieces of leather and on some metals because it doesn't make sense to have specular there.

Immediately on top of the Specular pass I applied the Rim Light passes using Screen layer

mode. These fitted perfectly, but I duplicated the right rim light layer to highlight some areas a little more.

Finally there was the SSS pass over all the layers in Screen mode. A lot of this layer was erased leaving it in some parts, like the mouth, hands and tail.

After I had assembled this I flattened the image and started a new one. In this second version I applied the background using the Mask pass. Then I highlighted the center of the scene, darkened the edges of the image and used the Depth of Field pass in the Lens Blur filter to achieve the blur effect. That's it! Finally the armored lizard was done (**Fig.53**).



## CONCLUSION

At the end of a project like this you learn a lot as there's always room for improvement. If I went back in time and started again I would change several things to make it better. I think that everyone should leave their comfort zone from time to time to learn and evolve further. I can't wait to start an even bigger project.

I hope you enjoyed the tutorial. For me it was an honor to write for 3DCreative and if you have any questions or feedback feel free to contact me.

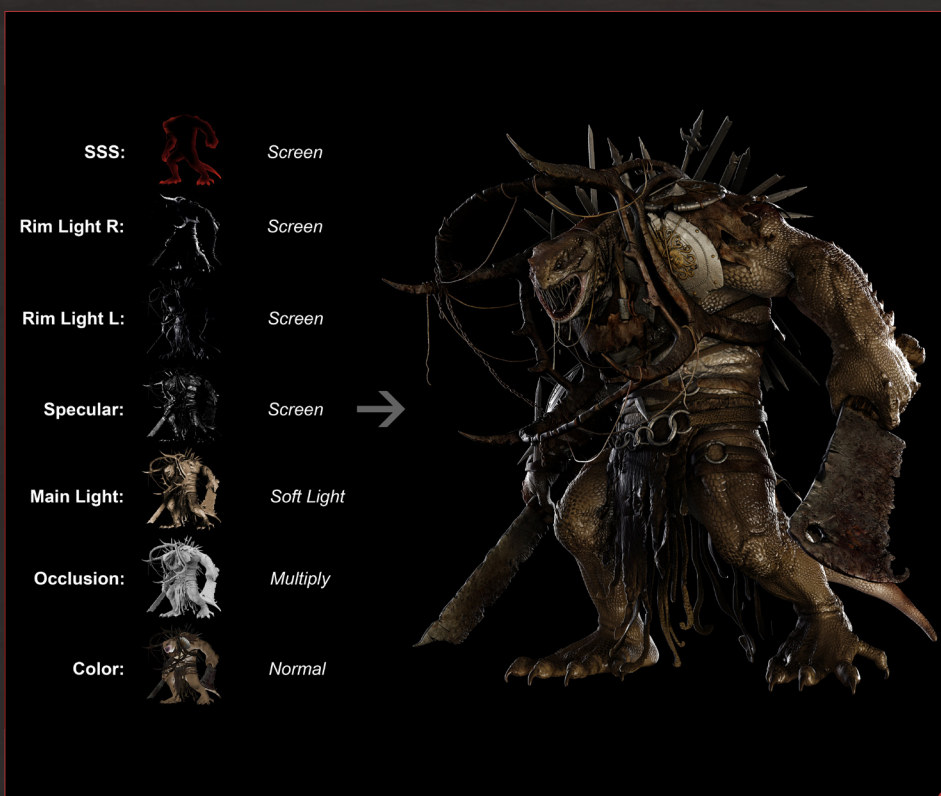
## BRUNO CAMARA

For more from this artist please visit:

<http://bruno-camara.blogspot.com/>

Or contact him at:

[bruno999@gmail.com](mailto:bruno999@gmail.com)



52



53



# TOPOLOGY

With all topics and skills there are core subjects that must be considered and understood in order to get the best results. When working in 3D, one of those is topology. In this series of tutorials Diego Maia will be talking us through the creation of his interesting character, whilst explaining the intricacies and importance of this fundamental subject.

## DECEMBER ISSUE 076

Chapter 01 | An Introduction to Topology

## THIS ISSUE

Chapter 02 | Limbs and Accessories

## NEXT ISSUE

Chapter 03 | Cleaning up and Adjustments

## MARCH ISSUE 079

Chapter 04 | Hard Surfaces



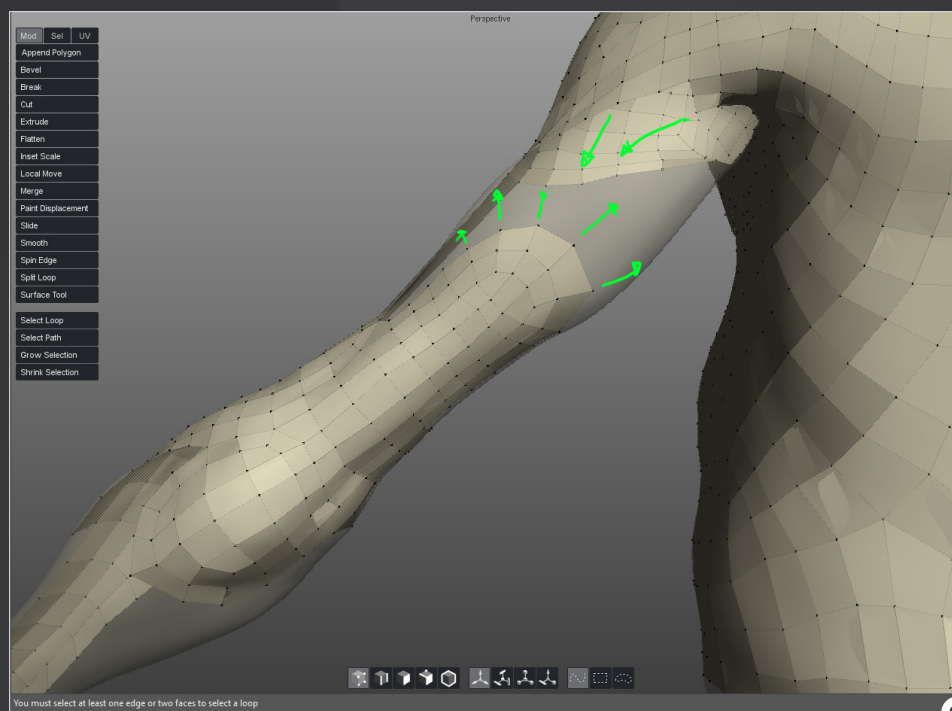
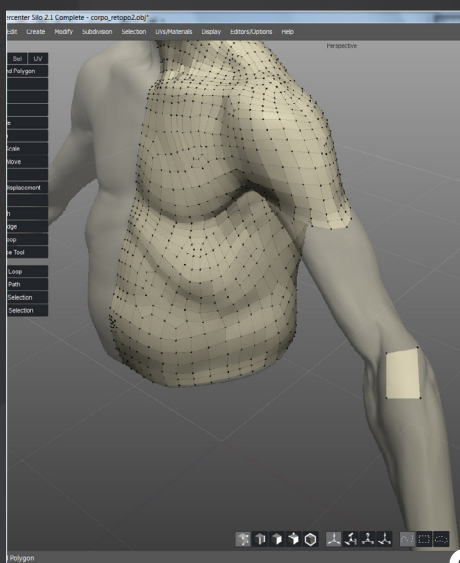


## CHAPTER 02 - LIMBS AND ACCESSORIES

Software used: 3ds Max

In the first chapter we talked about the concept of topology and how retopologizing can make the process faster and help you get much better results. We have already done the retopology for the head and the torso, so now we are going to talk about the arms, hands, feet, pants and shoes (**Fig.01 – 02**).

As I mentioned in the previous chapter it is important to choose the direction the loops

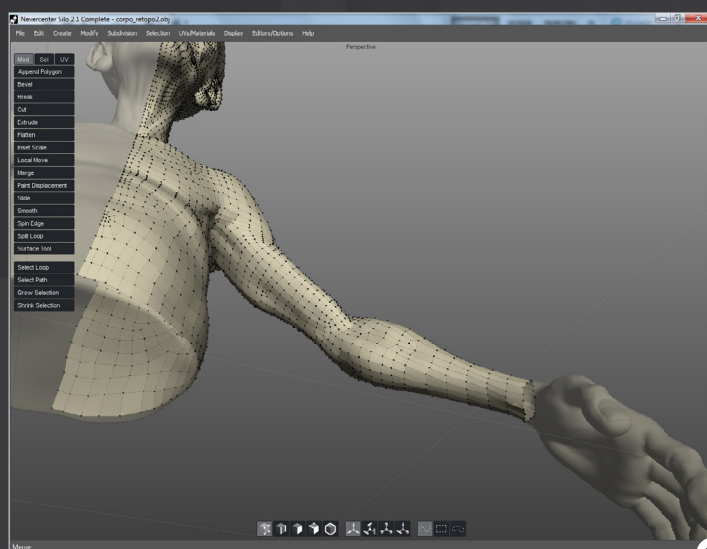
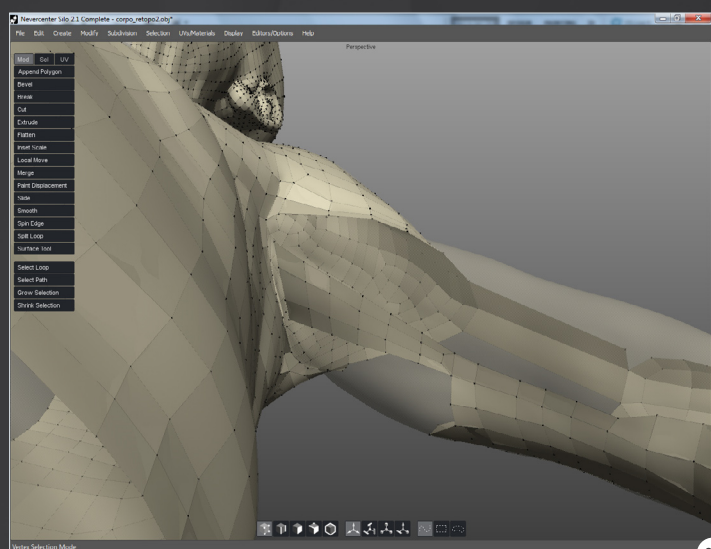


follow. So open the model that you left at the end of the first chapter and we will start working on the forearm and linking it to the shoulder.

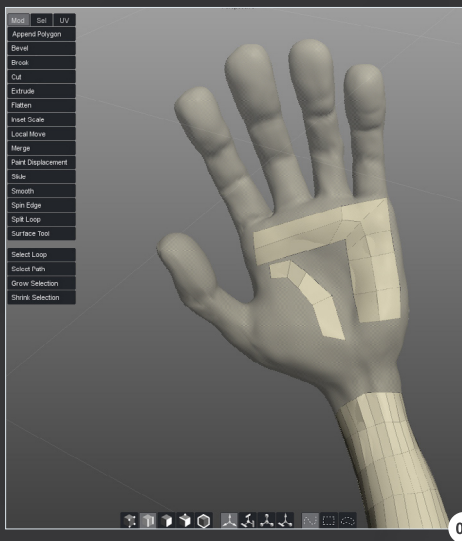
At this point you can work with larger polygons and add a subdivision later if you want as this is a bit faster. Just be careful because it can generate loops and polygons that are not necessary (**Fig.03**).

You can see in **Fig.04 – 05** how this way of creating the topology allows you to create loops that follow the contours of the anatomy.

We now have enough loops to create Blend Shapes to inflate or reduce any muscle/volume on our geometry. It is worth pointing out that you need to try to make sure the polygons have





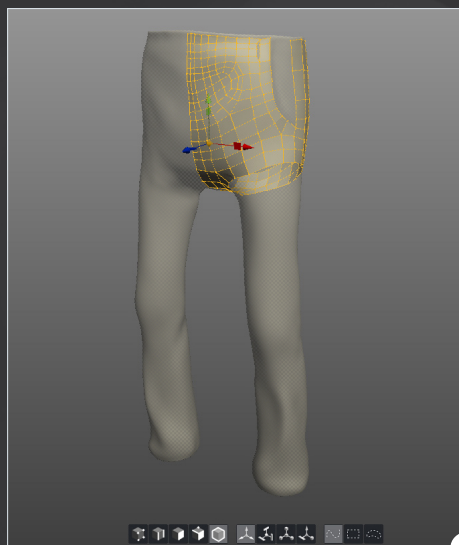
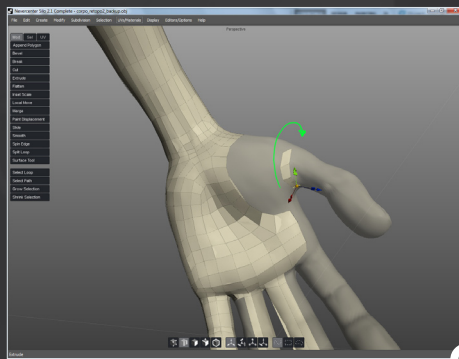
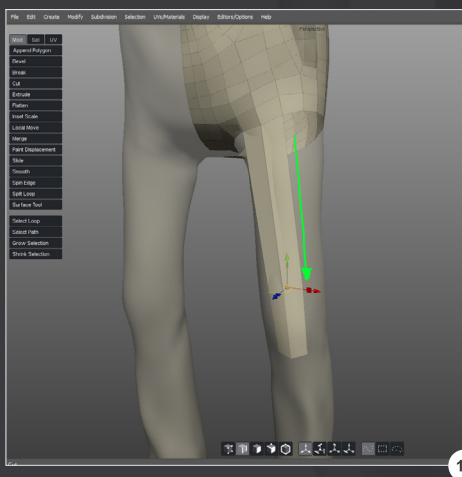


an average size and distance. Avoid having tremendous differences between polygon sizes.

The next step is to define the direction of the loops on the hand and fingers. Note that I didn't start from the edges that come from the wrist (**Fig.06 – 08**).

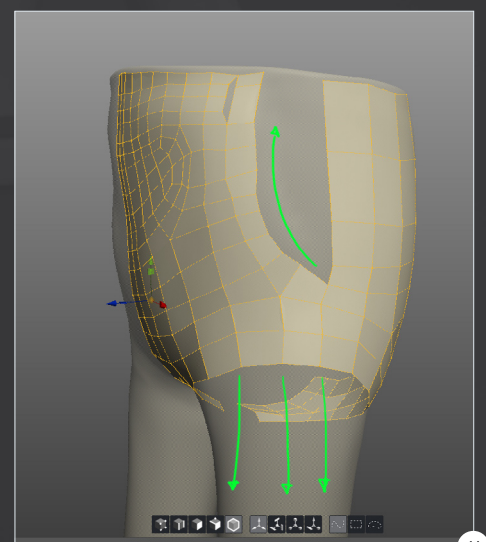
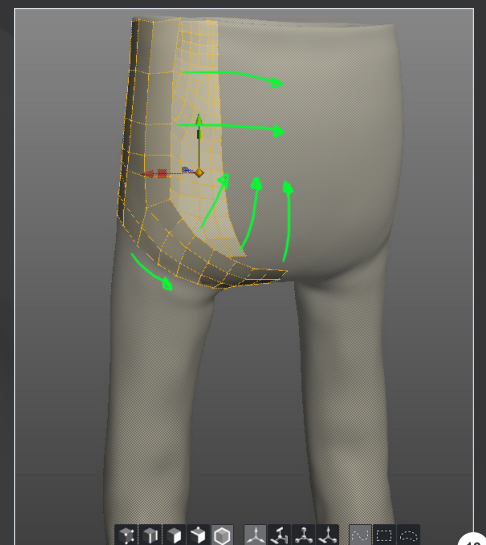
Next we will move on to the pants. You need to follow the same procedure as stated before. Even though this is simulated cloth, it is worth creating topology that fits the cloth's folds. This is so that these folds can be exaggerated if the character is to be animated. If you are modeling a character that has very detailed topology it is probably not necessary to create these folds in the cloth (**Fig.09 – 10**).

In **Fig.11** you can see how you should detail the pocket area by following the direction that the pockets would flow in.



When you move on to create the thigh area, extrude a large polygon, then subdivide the points and position them using the Snap tool (**Fig.12**).

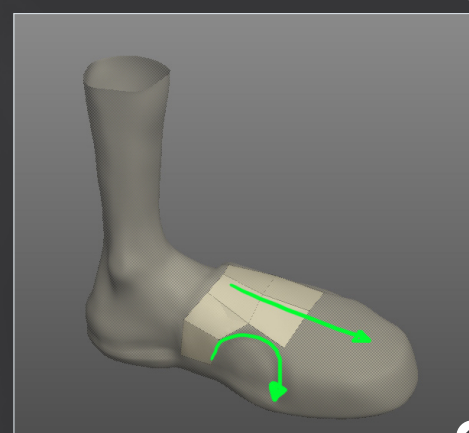
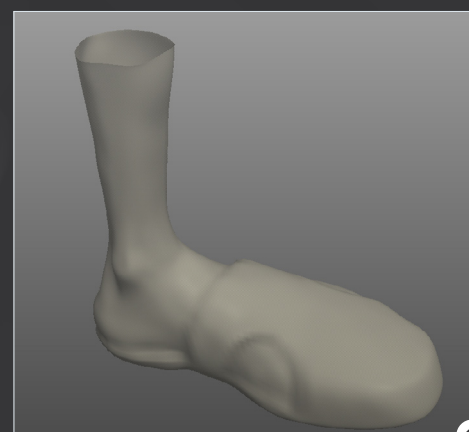
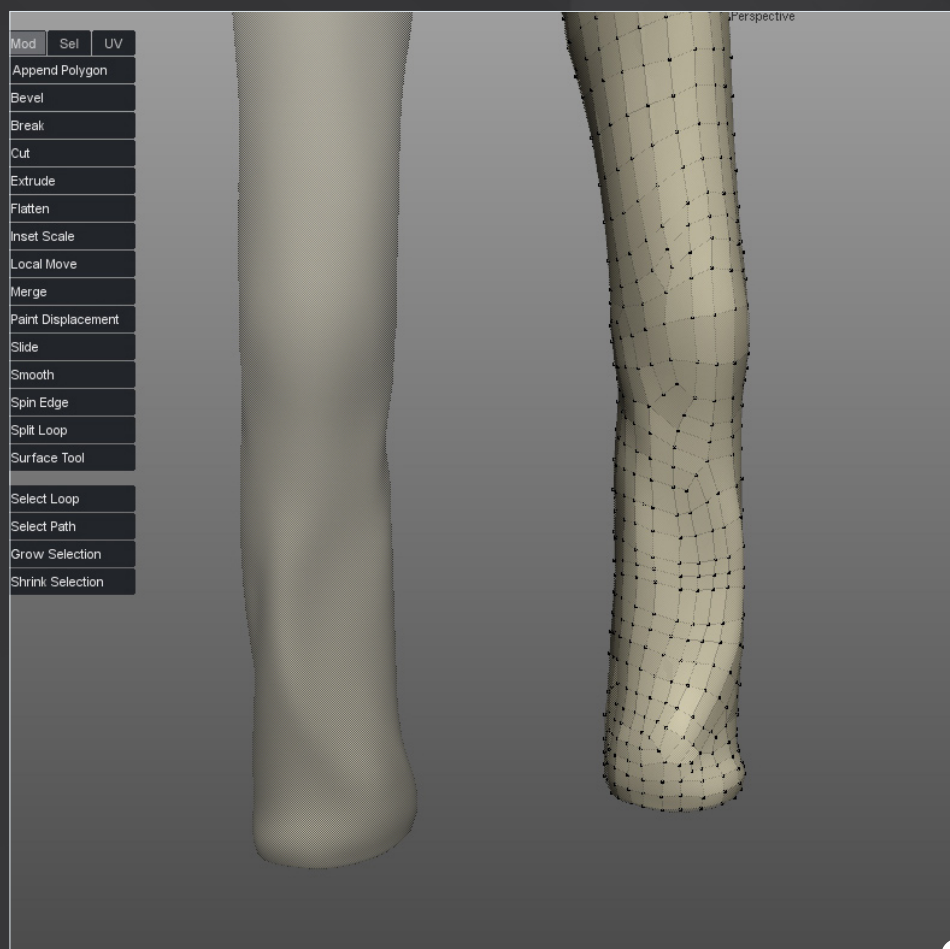
The loop then goes below the knee, which means that we will have the shape of the knee when the leg bends. This means we will avoid the appearance of a bent cylinder. This can be further improved with the use of a Blend Shape to pull the knee out, or even in the folds from the



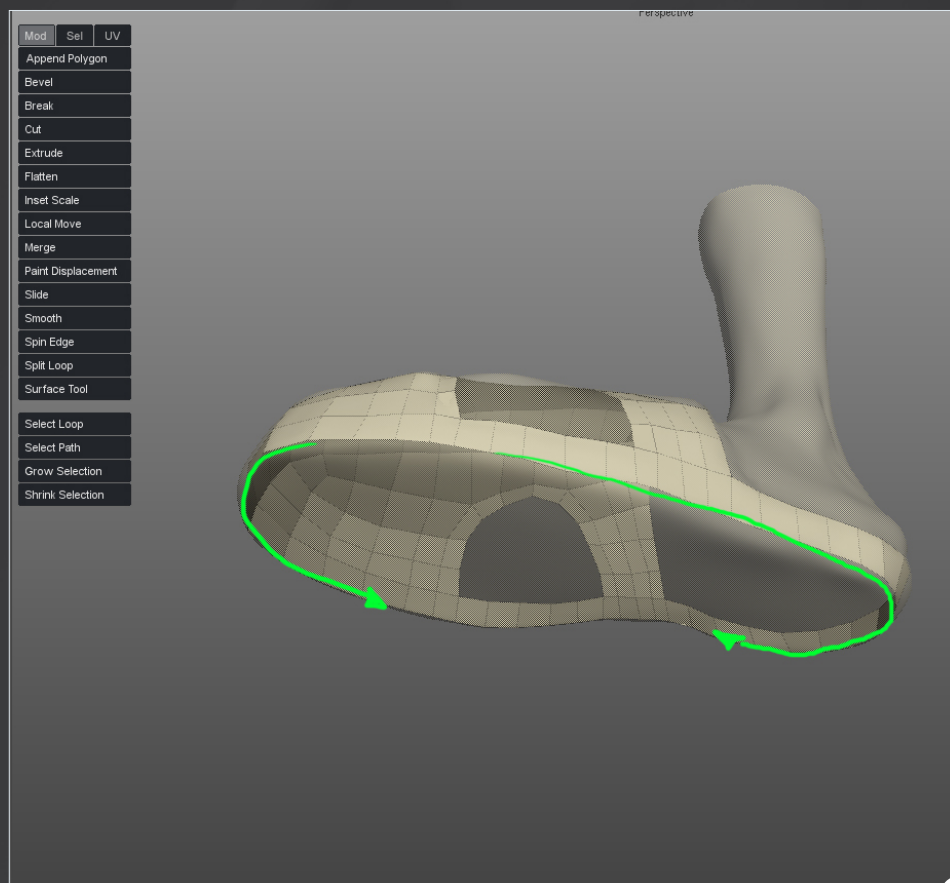
back of the leg. It is very important to talk to the rigger or director about these technical details before you start, because sometimes it can be done in other ways (such as an animated Displacement or a Normal map) or even unnecessary (**Fig.13 – 14**).

For the feet we will do things in the same way as we did the head. Create a polygon and



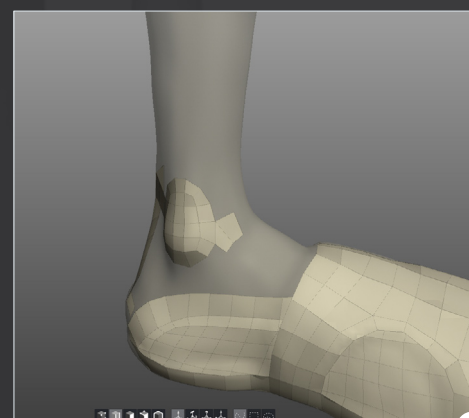


extrude its edges to cover the model to create the topology (Fig.15 – 16).



Although we have two objects here (foot and shoe), the blocking should be done as one subtool. This kind of choice can speed up the process as we can easily separate the objects later (Fig.17 – 18).

A common mistake is to keep the amount of polygons in the mesh quite low. This economy of polygons, in most cases, is irrelevant. The idea is to have geometry with sufficient polygons



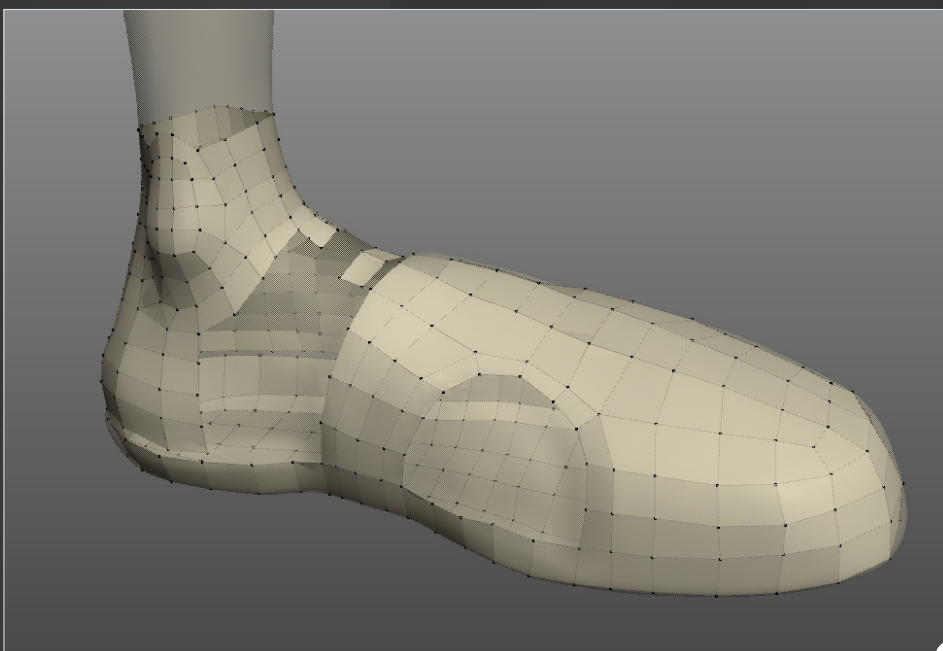


to maintain the overall shape of the character without subdivision, and to not have a big difference between the polygon sizes. Keep the polygons as close as possible to a square shape as well. It's exactly what we did for the head (Fig.19 – 20).

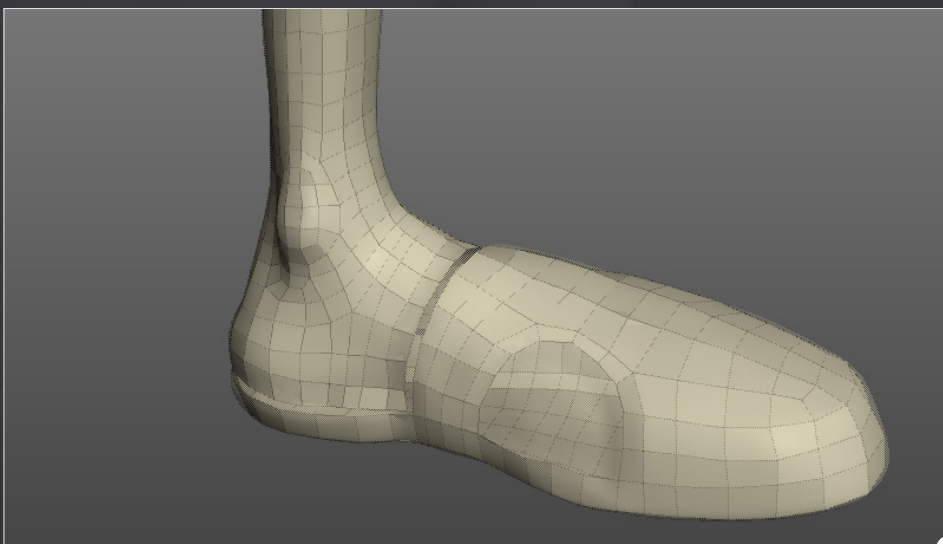
In Fig.21 we can see the details from the bottom of the pants. It's also nice to give thickness to our geometries. The amount of detail we show here will depend on the purpose of the model. If it is for a production that requires no detail on the mesh they will probably prefer Displacement or Normal maps or neither. However some objects (especially for close-ups) need extreme detailing. This kind of work without retopology can become a nightmare and last for days, weeks or months.

In Fig.22 you can see how I created the pocket. Create an opening for the pocket as a Blend Shape so the character's hand or anything else could be put in it.

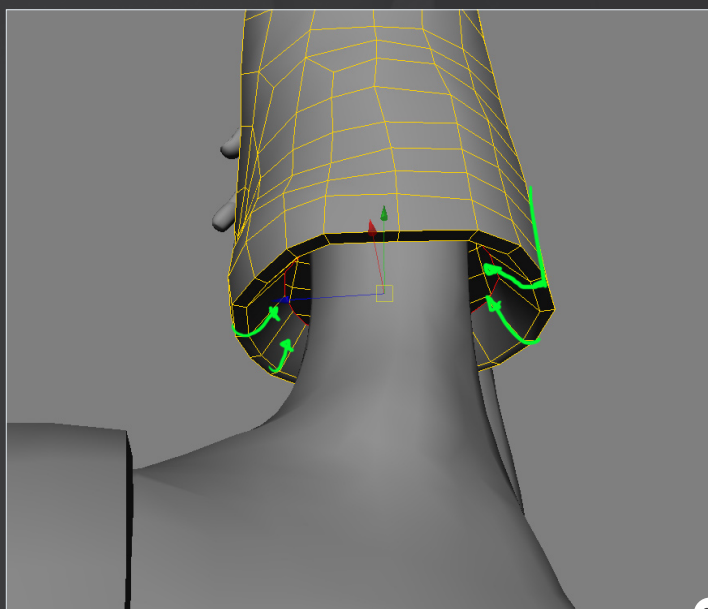
Extract a loop of polygons from the pants to create the belt. It is strongly recommended when overlapping geometry because it allows the upper model to follow the surface of the one below. When box modeling it's best to start with a cube and the new parts should be extracted from this topology (Fig.23).



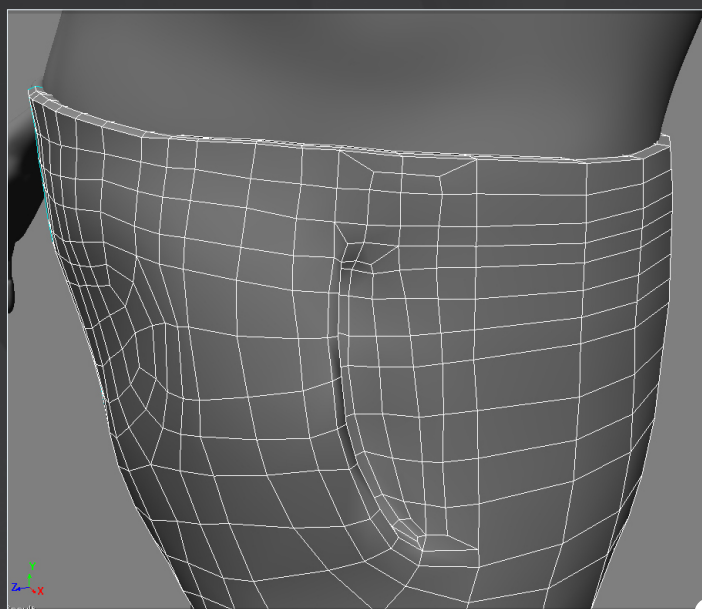
19



20

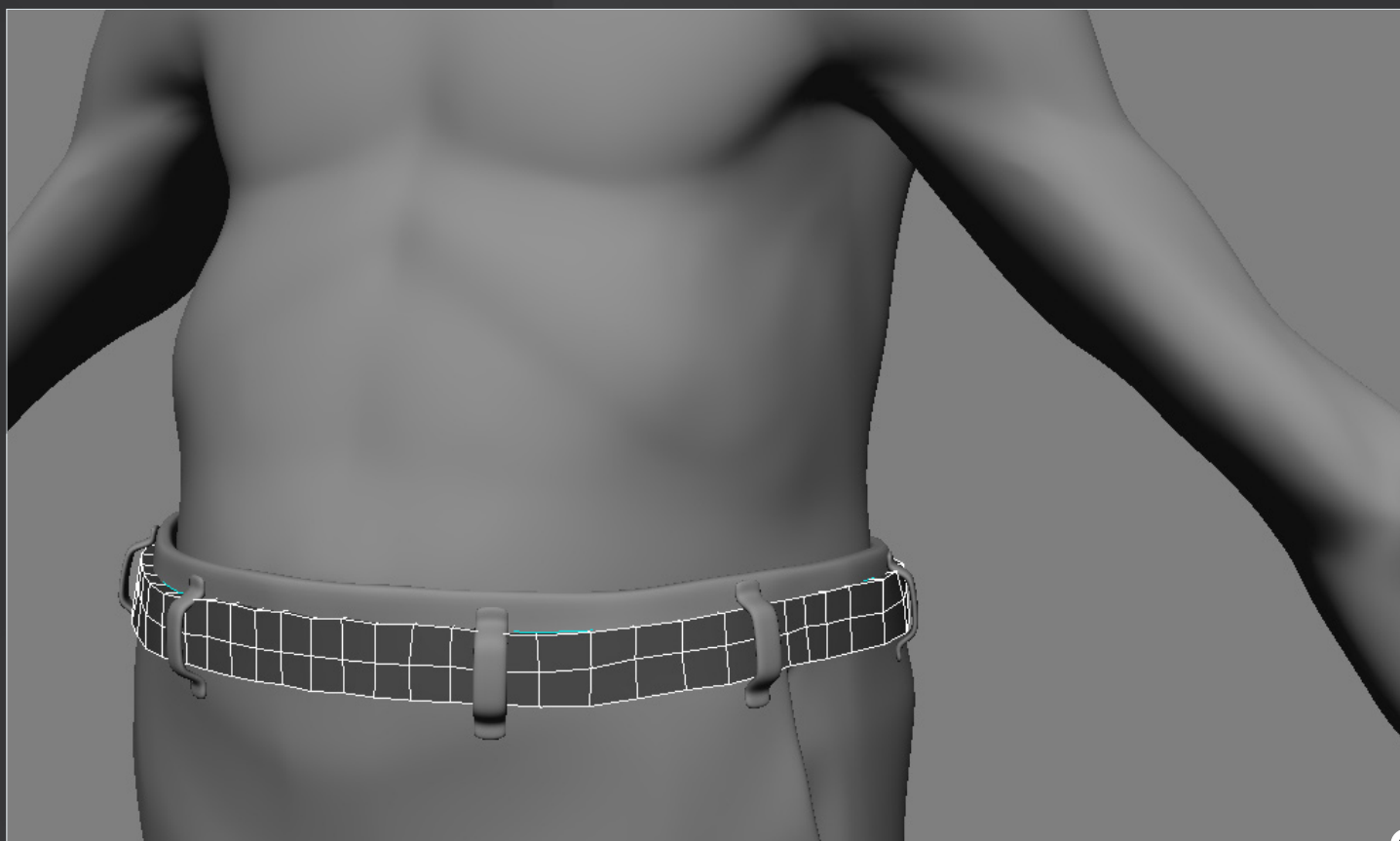


21

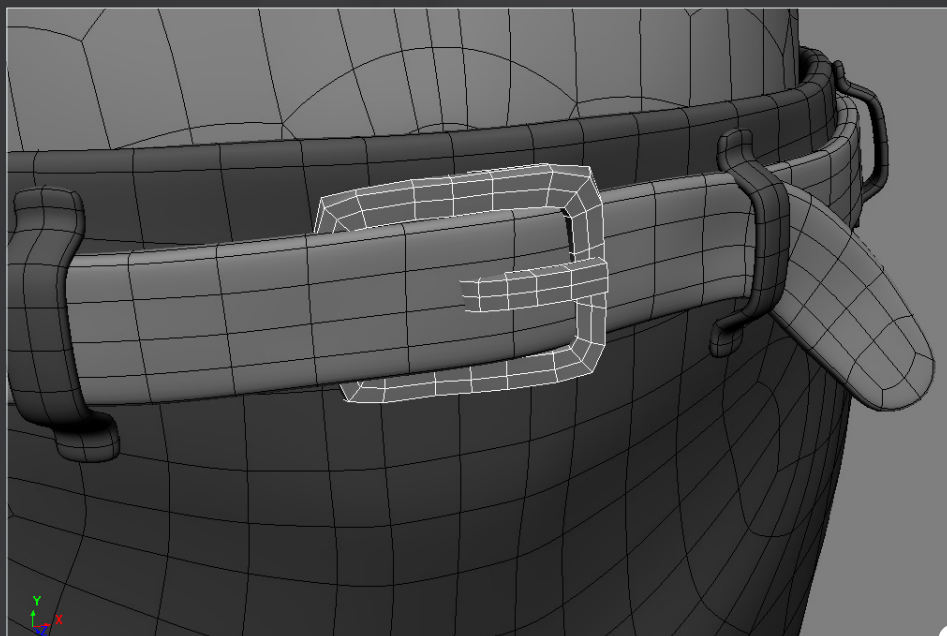


22





23



24

Create the belt fasteners as separate geometry. In most cases this is not a problem, but if you are doing this to be animated and you are unsure, ask the rigger (**Fig.24**).

That's our retopology complete. See how the geometry keeps the shape and design even with no subdivisions. Now it's time for final

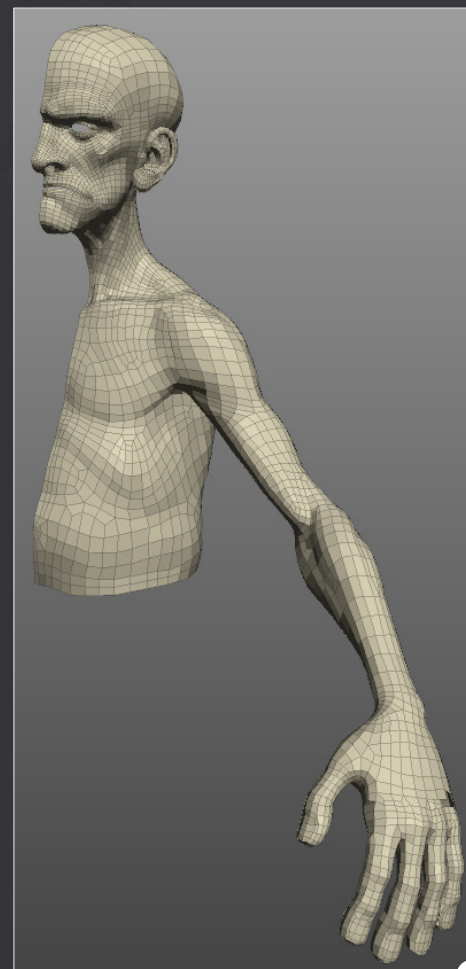
adjustments and re-projection in ZBrush. This will be the subject of our next tutorial. I hope it's been helpful so far (**Fig.25**).

## DIEGO MAIA

For more from this artist visit:

<http://maia3d.blogspot.com/>

Or contact him at: [maia3d@gmail.com](mailto:maia3d@gmail.com)



25



# ROCKETBOX LIBRARIES STOCK 3D MODELS AND ANIMATIONS

READY TO USE  
HIGHEST QUALITY STANDARD  
RIGGED AND ANIMATED  
OPTIMIZED FOR REALTIME  
FREQUENTLY UPDATED WITH NEW MODELS



SEE THE COMPLETE CHARACTERS HD SERIES



WITH FACIAL  
ANIMATION RIGS

[WWW.ROCKETBOX-LIBRARIES.COM](http://WWW.ROCKETBOX-LIBRARIES.COM)

Rocketbox Libraries does not sell 3d models or animations from different vendors.  
All assets are created in house to guarantee the high professional standard we are known for since 2005.

**Rocketbox Libraries**  
[www.rocketbox-libraries.com](http://www.rocketbox-libraries.com)

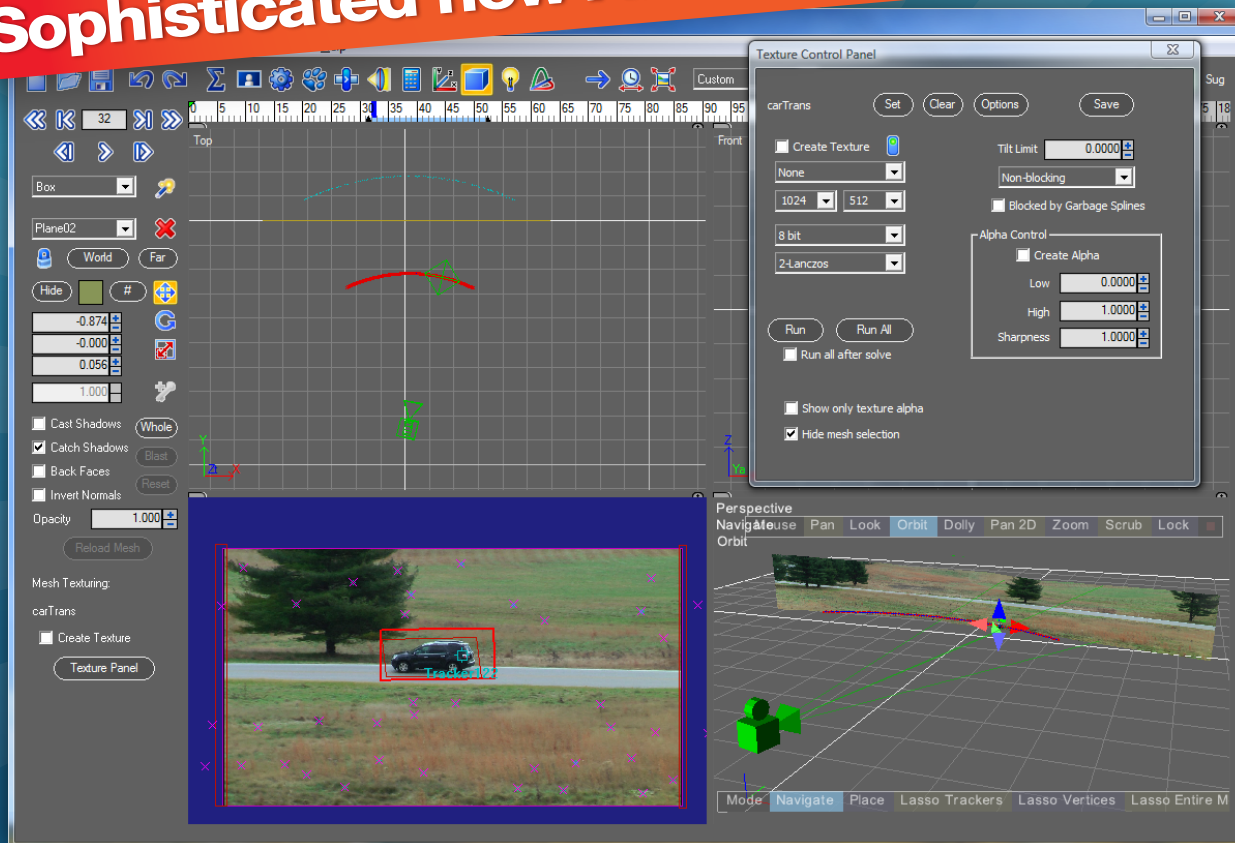




# SynthEyes 2011

Match-moving,  
Set Reconstruction,  
and Stabilization

**Now with amazing Texture Extraction and  
Sophisticated new AfterEffects exporter!**



See the tutorial at <http://www.youtube.com/SynthEyesHQ>

Pro 64-bit version only \$599 for Windows and Mac OS X,  
full-featured entry-level 32-bit version an incredible value at \$399



## Typical Applications

- Fixing Shaky Shots
- Virtual Set Extensions
- Animated Character Insertion
- Product Placement in Post-Production
- Face & Body Motion Capture
- Talking Animals



## What Our Users Say About SynthEyes 2011

"I've been faffing about with the texture extraction tool and it's brilliant!"

"Has to be seen to be believed!"

"You've got a great product at an incredible price."

"Texture extraction in Syntheyes 2011 is awesome. It works so well it must be magic."

"I love the tracker radar!  
It's useful AND it looks cool."

Andersson Technologies LLC

# ssontech.com

Seventh year in the market, serving artists in over 70 countries





Rudolf Herczog's stunning image *Sector 21* reminds us of some of the cool sci-fi films of the 90s, and in this Making Of he tells us exactly how it was created. The whole process Rudolf uses is fascinating, but pay special attention to the mix of texturing and post-production work, which creates stunning results.

MAKING OF BY RUDOLF HERCZOG

# SECTOR 21





## SECTOR 21

Software used: Cinema 4D

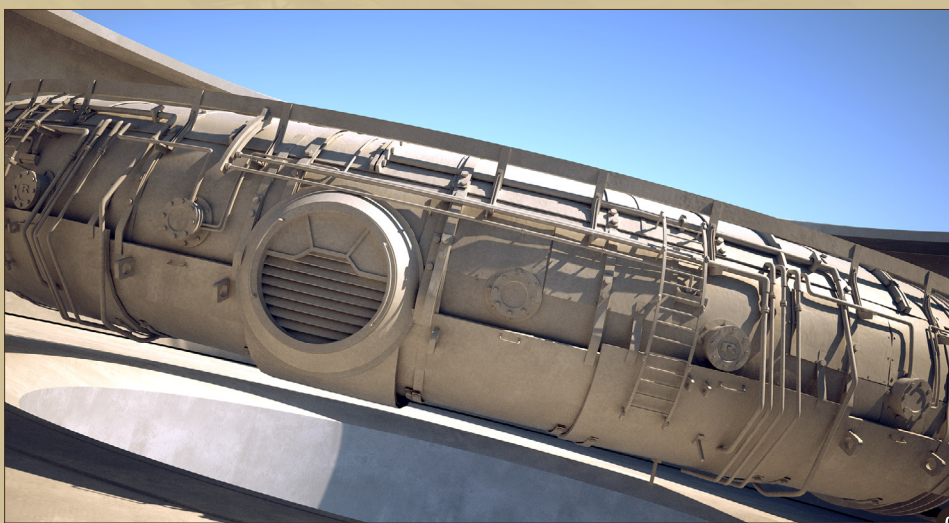
## INSPIRATION

The idea for this scene came when I was going through a few web pages showing old, abandoned industrial photos, which is often one of my primary sources of inspiration. I came across an old steel plant and a shot of a huge blast furnace covered with bolts and pipes. I've always loved making scenes with loads of detail work, so I thought it would be cool to use the furnace as a large platform-like, hanging structure and place it into a fairly cramped city environment. This would blend both industrial and futuristic elements. Inspired by what some parts of the world would be like in terms of air quality, I decided to turn it into a sort of air filtering machine and add a number of vents to both the machine and its surroundings, as well as adding a few characters, mainly for scale purposes but also to add some life to the scene.

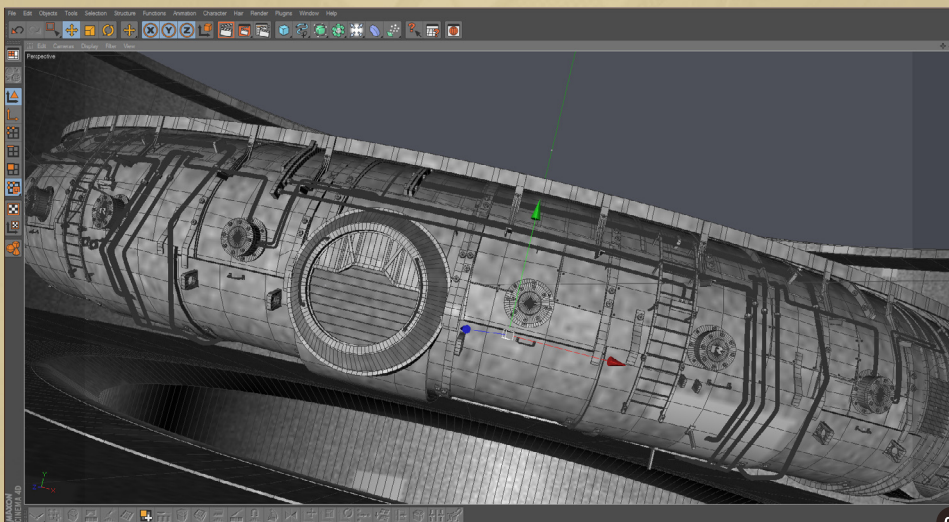
## MODELING

With any scene I work extensively from primitive objects and build all the models from smaller parts. I used the same technique here and started out with a torus object as a base, which I started covering with extra plating, vents, bolts etc., as well as pipes made of sweep nurbs (Fig.01 – 02).

Covering only the portion of the torus visible to the camera, I then started working on the upper platform. I made a set of railings surrounding the base and added a few ladders allowing access to the platform from the ground. I also added a



01

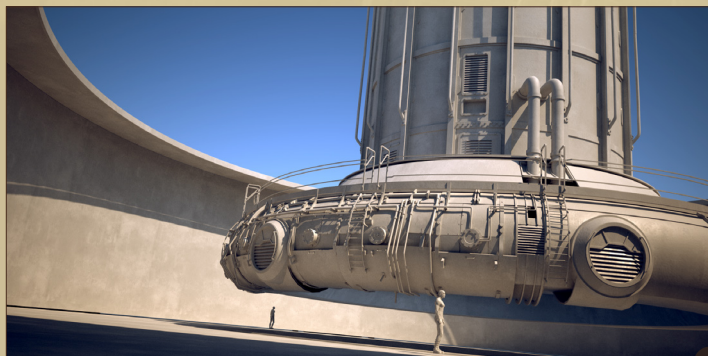


02

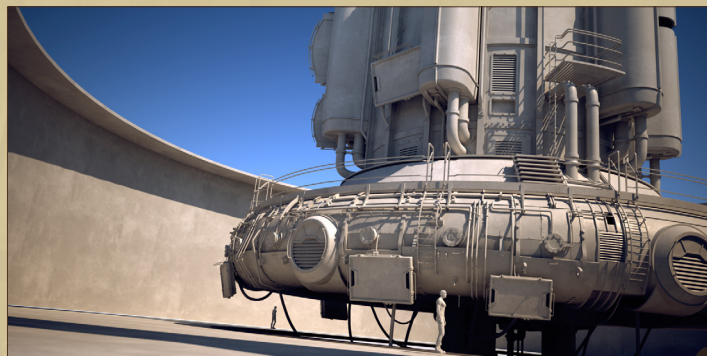
few simple characters to show the scale. Next I built the body of the structure, which would support the base. I modeled a set of air tanks surrounding it and connected these with thicker pipes. The thought was to use the body as the control center of the structure, so I also modeled a smaller service platform halfway up.

The next step was to fill up the empty part beneath the base. Although the structure was

supposed to hang freely, I still wanted it to be somewhat connected to the ground. I had already left a hole in the ground plane for this, and added a number of thick pipes to its center. I also placed wiring all around as if they would connect the structure to some sort of machinery beneath. Once that was done I modeled a few billboards and placed them around the structure (Fig.03 – 04).



03



04

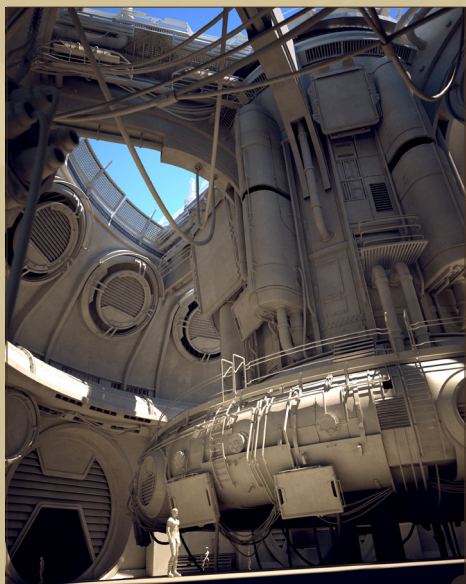




05

Next I wanted to pay closer attention to the walls surrounding the structure. My initial idea was to use huge columns surrounding everything and a more open space, but as the model progressed I decided to go for a more closed environment

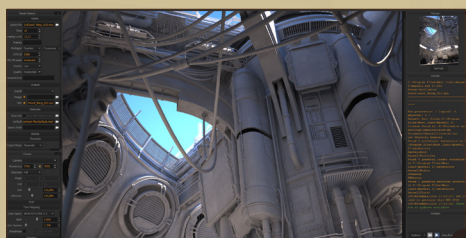
instead. I used a number of tube objects for the walls and Booleans to cut some holes for doors and fans. Then I reworked the large fans used on the base and embedded a few of them into the upper section of the walls. I also covered the door openings with blinds (**Fig.05**).



07

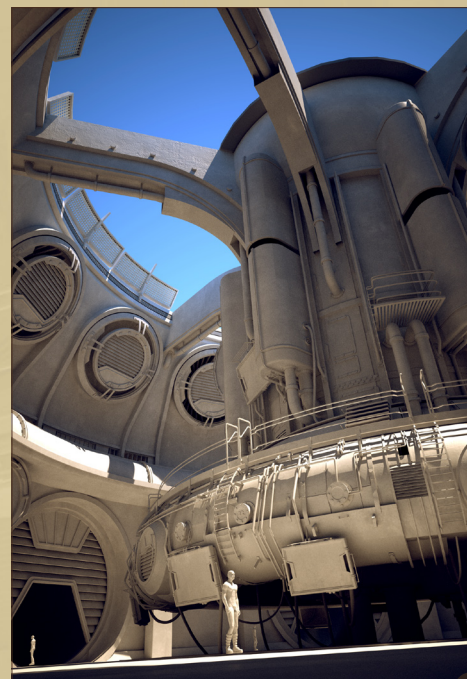
I did some more work on the outer walls, and then went back to the main structure and added the support beams that would actually hold the entire structure up. During this stage I also set up the proper camera view.

I decided to position the camera close to the ground to add a little bit of scale to the scene and also allow the viewer to see both the ground and the people on it, as well as most of the structure. I also kept parts of the sky visible for atmospheric purposes.



08

Once I had attached the support beams to the outer walls I modeled a platform on top of the main structure, a few walkways leading out to the edges, as well as additional fans. To fill up the scene even more I added some wiring, a few extra billboards and additional detail on both the main structure and the walls (**Fig.06 – 07**).



06

## MATERIALS & LIGHTING

This part was a no-brainer. I decided to go with a simple consistent material for the whole scene and do the rest in Photoshop. This is a procedure I've tried before that worked out quite well with one of my previous images called *The Gateway*. I then used Maxwell's physical sky and sun set at mid-day as the only light source and let it cook overnight (**Fig.08**).



## POST-PRODUCTION

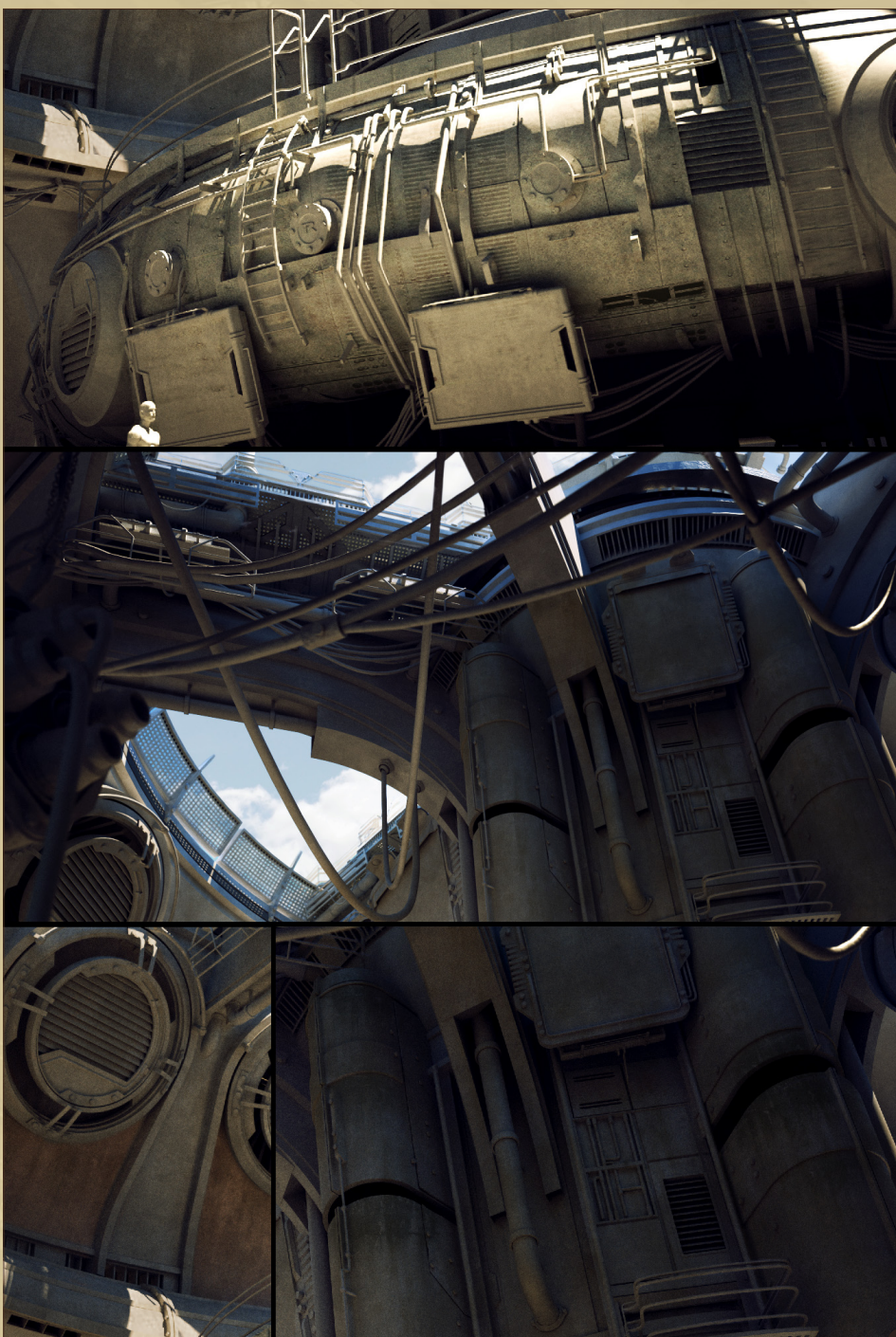
Once in Photoshop I started out by doing a few initial color corrections then applied a few textures to add a little bit more detail, mainly to the plating of the base. With the help of an alpha mask, I also added the sky which could be seen in the small gaps at the top. Then I used a copper texture for the areas next to the fans on the outer walls. Although I wanted the image to be slightly monochromatic, I also wanted to add a little bit of color in certain areas; not much, but just enough to break the uniform look. Once that was done it was time to add some



10



11



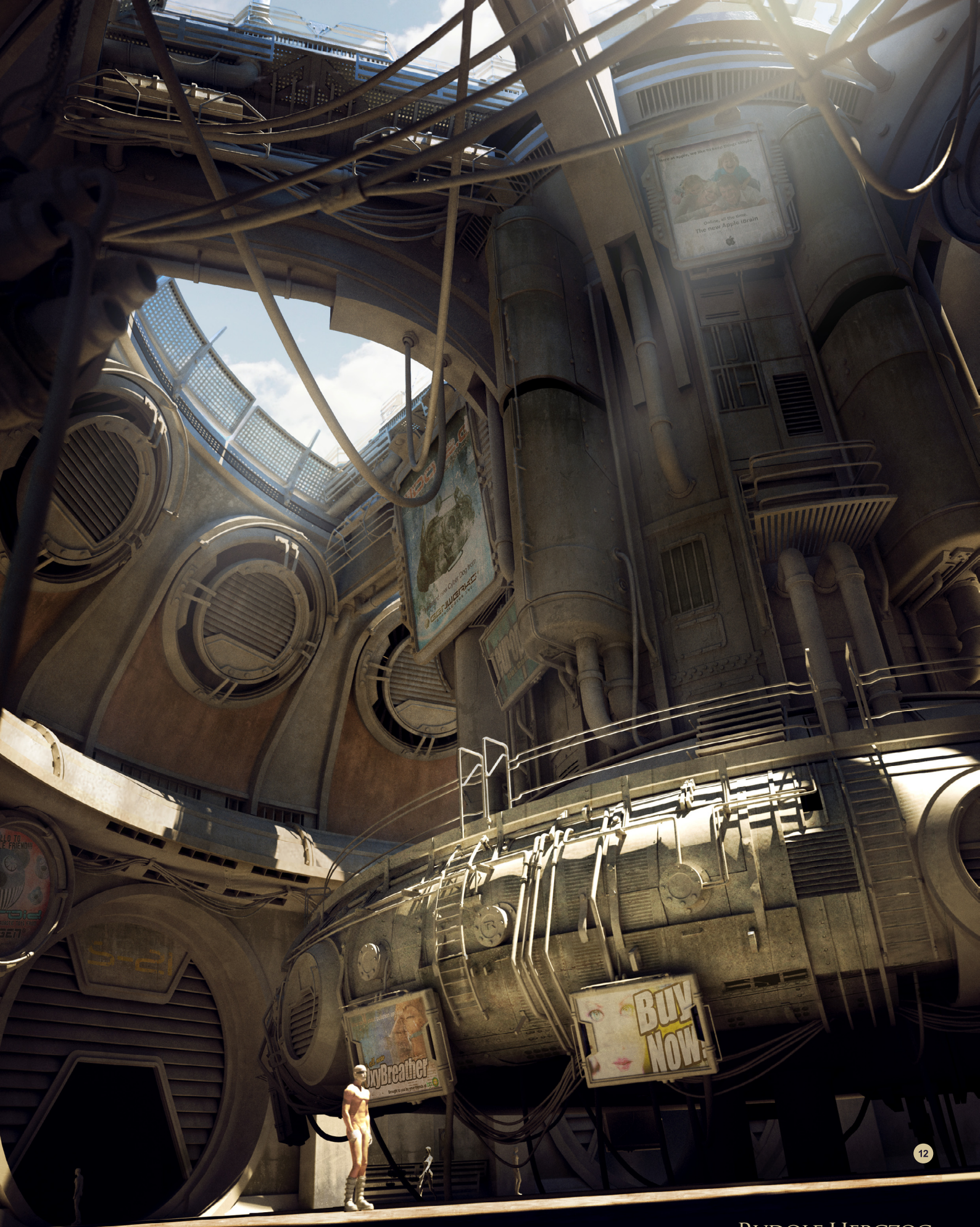
09

dirt to the scene. For this purpose I used black and white dirt maps and various layer effects, applying these at the edges, cracks and larger clean surfaces etc. I also made a few imaginary billboard textures for the blank modeled ones in the scene (Fig.09 – 11).

The next step was to add a little warmth to the overall atmosphere, so I decided to add a few sun rays coming through the opening at the top. For these I used the Line tool to create

a few thick lines, added a fairly large amount of Gaussian blur to them and decreased their opacity slightly. I then used a layer mask and the Gradient tool to shape the rays. I also used the Ellipse tool in a similar way to create a little bit of haze where the rays come through the support beams. To wrap things up I did a few more color and gamma corrections before I baked all the layers and finalized the image (Fig.12).





RUDOLF HERCZOG

For more from this artist visit:

<http://www.rochr.com/>

Or contact him at:

[rudy@rochr.com](mailto:rudy@rochr.com)



**AVAILABLE NOW!**  
DVD, Digital Download, Subscription

THE **GNOMON** WORKSHOP

# LEVEL UP YOUR DIGITAL SCULPTING SKILLS TRAIN WITH KILLER ARTISTS

## 3D CHARACTER DESIGN SERIES WITH SCOTT PATTON

In this two volume series, Scott Patton shows the processes he uses to create a 3D character for feature films. The first volume explores Patton's fast and efficient method for concept sculpting, skipping the 2D sketch phase all together and designing the character entirely within ZBrush®. He covers everything from blocking out the forms and fleshing out the muscles, to adding props, detailing with alphas and posing the character. The second volume covers methods for creating a final color rendering using ZBrush and Photoshop®. Patton shows how he squeezes the most from ZBrush's powerful renderer to create both a wide and close-up shot of the character. He then shares creative Photoshop tips and tricks to quickly get to a finished piece of concept art from the ZBrush renders, covering topics such as adding and refining skin texture, hair, eyes, shadows and scars. Patton also discusses how to create backgrounds that enhance the character and overall composition.



All Tutorials Are Now Available  
As DVDs, Digital Downloads,  
And Part of The Online Training Subscription  
[www.thegnomonworkshop.com](http://www.thegnomonworkshop.com)



# Subscribe

**SUBSCRIBE NOW & SAVE UP TO 25%**  
on this already amazing value publication!

**12 ISSUES FOR THE PRICE OF 9**  
£24.75 save £8.25 (approx - \$35.91 save \$11.97)

**6 ISSUES FOR THE PRICE OF 5**  
£13.75 save £2.75 (approx - \$19.95 save \$3.99)

visit [www.3dcreativemag.com](http://www.3dcreativemag.com) for full information.

**Have your 3DCreative Magazine  
Download link delivered automatically  
to your inbox every month...  
and have it before anyone else!**





# 3DC next month

Here is what's in next months issue of 3dcreative

## Tutorials

### Swordmaster 2

3dsmax & Maya  
Chapter 5 - Texturing  
by Gavin Goulden

### The Cyborg Projects

Chapter 3 - Power Plugs  
by Andrzej Sykut

### Sculpting Armored Beasts

Chapter 2 - Chicken  
by Jose Alves da Silva

### Topology

Chapter 3 - Cleaning up  
and Adjustments  
by Diego Maia

## Interviews

Igor Kudryavtsev

## Galleries

another **10 of the best**  
Images from around the world!

## Making of's

### Desert Gas Station

by Eugenio Garcia

### DAM v6 Making of

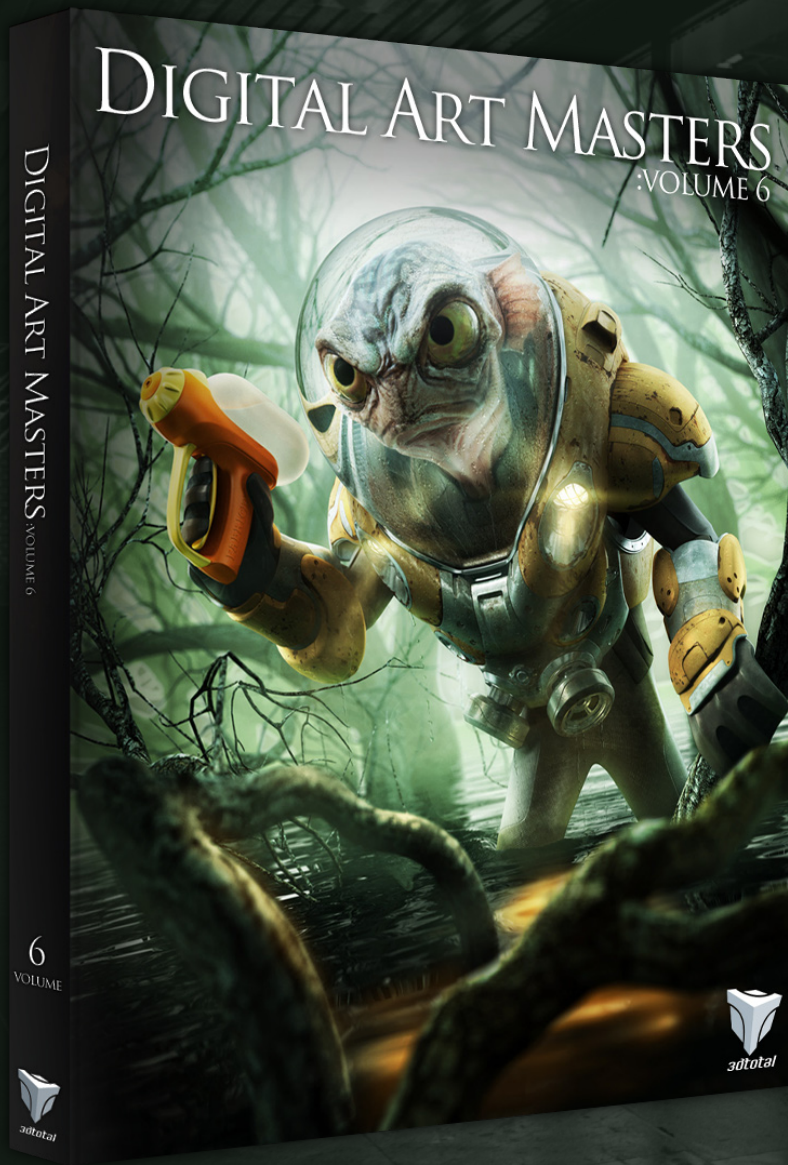
by Rafael Grassetti

visit [www.3dcreativemag.com](http://www.3dcreativemag.com)  
for full information and to  
purchase current and previous  
issues for only £2.75 each!

Image by Igor Kudryavtsev



# DIGITAL ART MASTERS VOLUME 6



With the release of 3DTotal's new book, *Digital Art Masters: Volume 6*, we have some exclusive chapters for you...

This is more than just an artwork book. Not only does it feature full-color, full-page images, but each artist has given a detailed description, in their own words, of the creation process behind each piece of published artwork. And they've done it especially for this book!

This month we feature:

## "EVERYTHING BEAUTIFUL IS FAR AWAY"

BY MAREK DENKO







## EVERYTHING BEAUTIFUL IS FAR AWAY

BY MAREK DENKO

JOB TITLE: CEO - Neonmotion s.r.o.  
SOFTWARE USED: 3ds Max 2009, V-Ray and Photoshop

**INTRODUCTION**  
*Everything Beautiful is Far Away* is partly based on my photography from 2005. I took pictures in the waiting area of the central bus station in Bratislava when I was waiting with my girlfriend for a bus to take us "far away". In the following article I'll describe how I made it and show you readers some tricks I'm using in my everyday personal and professional workflow.

### CONCEPT AND REFERENCES

In terms of the message this image should deliver, here is what I wrote about it on my website: "It's about being far away from family, friends and from everything you love and care about. Just an anonymous cold waiting area containing airport gates with strangers all around. I know airports are quite modern and fancy these days... but I think it's even more impersonal with all those duty-free shops, fake Irish pubs and pizza restaurants. So take a minute and enjoy it."

**IT'S HARD TO ADMIT, BUT THE PLANE WAS THE MOST COMPLICATED MODEL IN THE SCENE.**

I began with the modeling and then developed the image itself. I decided to make it an airport or train station. In the end an airport seemed more magical, with a nice view that hinted at anonymous and distant destinations. I also



34

TITLE OF SECTION



used lot of different pictures as references for several elements in the scene. Other inspiration came just from observing things around me.

This is the fifth article I have written for the Digital Art Masters series, so I'll definitely be repeating myself for a fifth time when I say that I always find references an essential part of my work. So I advise that you just look around and observe things, feel things and construct them as you see them. There isn't too much to mess up if you follow what you see in the real world (Fig.01 - 02).

### MODELING

Almost all the modeling work was done in 3ds Max 2009, with a little help from the Polyboost plugin for modeling the aeroplane. I used ZBrush to model the character details and for the bag and luggage props. The modeling workflow is simple if you know what

you need to model, so good references are, again, important. If you are simply doodling the creative process can become more complicated. I've always had to exaggerate the modeling in ZBrush in order for it to look correct in my lighting setup after rendering.

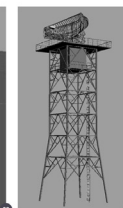
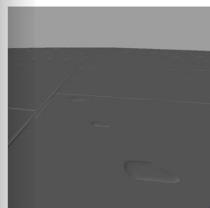
I spent most of the time on those parts of the characters that were going to be visible in the render, since I was almost sure where they would be. My usual workflow is to start from a simple shape or object, then convert it to an Editable Poly and use the common features such as Extrude, Bevel, Connect, Weld, etc. The most modifiers I tend to use most frequently are TurboSmooth, Displace, Noise and Symmetry. In the following paragraphs I'll describe some of those techniques I used on several of the scene models.

It's hard to admit, but the plane was the most complicated model in the scene. I had to use a



lot of Booleans to cut out the cabin windows in the front of the plane. Try to Google this plane and have a go yourself. I really can recommend it as a training exercise in modeling and I am still left wondering what techniques were used by the original designers. It was quite a day when I first tried doing it by way of standard topology and subdivisions without Boolean operations (Fig.03).

Modeling the luggage was a little more fun than working on the plane. I started with a base mesh and moved to ZBrush for the high res sculpting. I then went back to 3ds Max to add details like the zip and metal accessories. Again a little exaggeration was required on the model to achieve the desired look when rendered (Fig.04).



I'm not that much of a character modeler and rarely create them, but in this case it was necessary. I used an old mesh for the head and then proceeded to model the base mesh for the clothes. Following a couple of sessions working between 3ds Max and ZBrush, the job was done (Fig.05).

The floor is the area that I spent the most time on. It doesn't look like a complicated model, but there are some extra features I'd like to describe. Every tile is a separate object and each has a little bit of variation in rotation and position (only about 2%). Between the tiles there are very subtle, tiny cylinders to simulate the dirty edges and every tile has several UV coordinate channels. Using these channels I was able to add a lot of variation to the Diffuse



values, and especially the Reflection and Reflection Glossiness. The final stage involved adding hundreds of old chewing gum spots across the floor, which although disgusting are nevertheless a reality. The gum pieces were placed using the Advanced Painter script (Fig.06).

This was one of the background objects so there was no need for any real detail. It was composed using a combination of Splines and the Sweep Modifier. The radar dish is made from a base model and the Lattice Modifier, which for non-3ds Max users means that the edges are converted to splines (Fig.07).

This was pretty straightforward and done using the standard polygonal modeling tools (Fig.08).



TITLE OF SECTION

35



The following shots of the "Everything Beautiful is Far Away" book pages are featured here in full-resolution and can be read by zooming in...



3DTOTAL BOOKS  
SAVE UP TO 20%

FOR BUNDLE BUYS

2 BOOKS - 10%

3 BOOKS - 15%

4+ BOOKS - 20%



# DIGITAL ART MASTERS

## : VOLUME 6



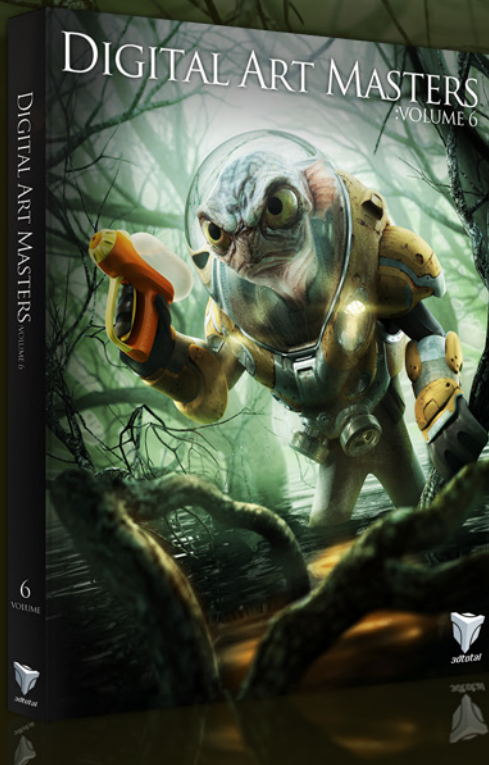
## AVAILABLE NOW

Preview the entire Digital Art Masters: Volume 6 book online by clicking [here](#).

Digital Art Masters: Volume 6 delves into the working practices of some of the world's best digital artists to reveal the creation processes behind their breathtaking images.

Originally launched in 2005, the annual Digital Art Masters series continues to showcase the work of some of the finest 2D and 3D artists from around the world. The latest volume, Digital Art Masters: Volume 6 is our biggest book yet. It welcomes another 50 up and-coming and veteran artists, and follows the tradition of taking readers beyond the breathtaking images with detailed breakdowns of the techniques and tricks each artist employed while creating their stunning imagery. Inspirational and instructive, this is more than just a gallery or coffee table book, this is a timeless resource for any digital artist. The special hardcover edition is only available to purchase from [www.3dtotal.com/shop](http://www.3dtotal.com/shop)

Hardback - 21.6cm x 27.9cm | 320 Full Colour Premium Paper Pages | ISBN: 978-0-9551530-5-1



**3DTOTAL.COM**

Visit [3DTotal.com](http://3DTotal.com) to see our full range Book products





# SWORDMASTER 2



## CHAPTER 4 – UNWRAPPING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.

CHAPTER 1 | OCTOBER ISSUE 074  
Base model

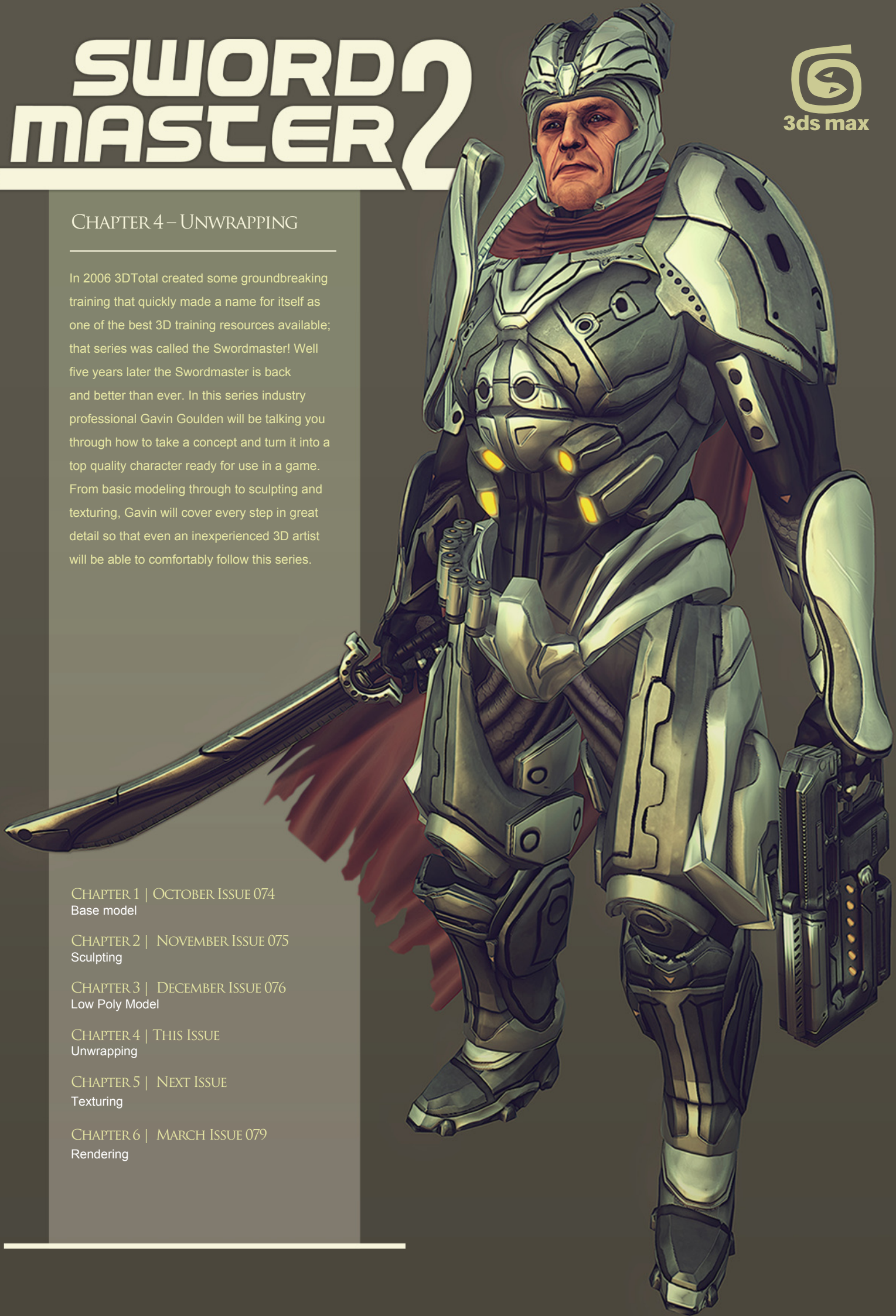
CHAPTER 2 | NOVEMBER ISSUE 075  
Sculpting

CHAPTER 3 | DECEMBER ISSUE 076  
Low Poly Model

CHAPTER 4 | THIS ISSUE  
Unwrapping

CHAPTER 5 | NEXT ISSUE  
Texturing

CHAPTER 6 | MARCH ISSUE 079  
Rendering







3ds max

SWORDMASTER 2 Chapter 4 – Unwrapping

3dcreative

## CHAPTER 4 – UNWRAPPING

Software used: 3ds Max

### INTRODUCTION

In this chapter we will be covering the creation of a UV map for our character. A nice clean unwrap is usually an overlooked part of the process that is extremely important to our final product. With a well laid out UV map you can benefit from texture resolution and cleaner texture bakes when creating Normal and Ambient Occlusion maps.

To begin, analyze which parts of the low poly mesh can be unwrapped once and mirrored for optimal UVs. In earlier steps we also covered instancing objects for this reason, such as the bullets and shoulder pad panels. In an ideal world everything would be unique and have finer details to create asymmetrical detail, but given modern day standards it is wise to mirror sections that will not be focus points and leave asymmetrical detail to larger, iconic pieces. For this character I recommend mirroring the limbs, half of the shoulder pads and the helmet, leaving the chest and face as fully unique objects (**Fig.01**).

Next create a standard material and assign a checker board pattern texture to the Diffuse slot. Using a checker pattern is a great way to make sure that all of the elements in your UV map are taking up the correct amount of space. For example, seeing many tiny squares on the chest and only a few large squares on the arm will tell you that you need to devote more UV space to the arm, or less to the chest, to make them equal. This is important when texturing as you will want an even texel density along the mesh to make sure details are at the same scale.

In Max press M to bring up the Material Editor. Select a shader ball and navigate to the Diffuse texture slot. Click on the button to the left and select Checker from the list. Once this is done properties will be available to you so that you can alter the checker's appearance. I usually just stick with the normal black and white checkers and

Fig 01

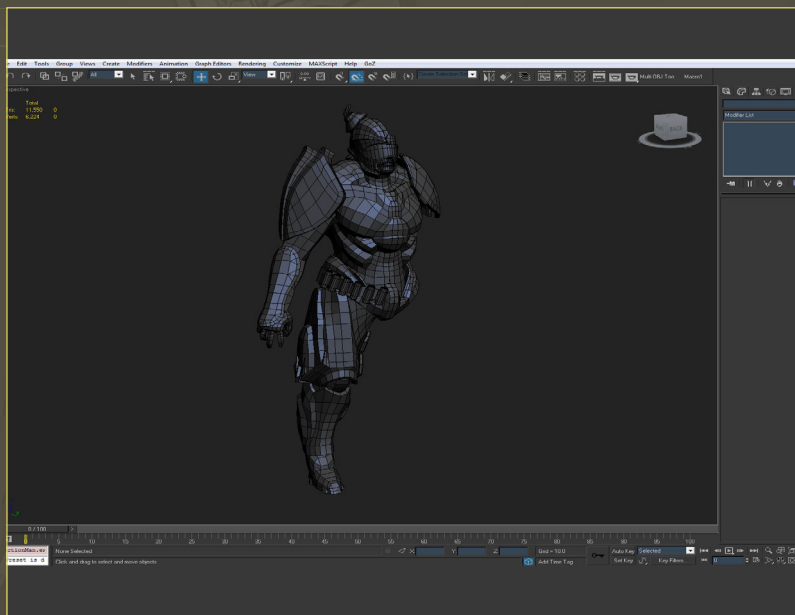
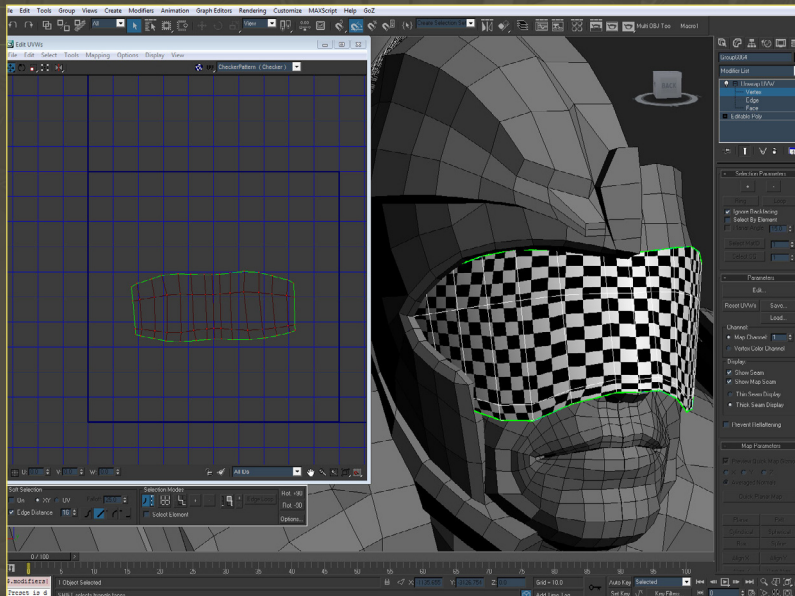


Fig 02



Fig 03





set the tiling to 25 x 25. Having more checkers visible to you just makes it easier to visualize the real estate each piece of the mesh is taking up, and having equal U and V tiles ensures that the checkers will be square. Once the shader is set up, select all of the objects in the scene and assign the new checker material to them (**Fig.02**).

Grab the visor and apply an Unwrap UVW modifier to it. This will be a constant step throughout the entire tutorial as Max requires a modifier to access the model's UV information. Once this has been applied, enter Edit mode, select all of the faces and assign a simple planar map. Based on the appearance of the checkers you can see that there will be some distortion along the edges of the visor. In the UV editor, grab these UVs and pull them left or right. Make sure that Constant Update (located in Options) is enabled to immediately see these changes in real time (**Fig.03**).

Up next is the face. After applying the modifier, grab all of the faces and assign a simple planar projection to the model. This will cause some significant distortion towards the edge of the face and the sides of the nose, but it will give us a solid starting point (**Fig.04**).

Apply a Pelt map to the model. This will be based off of the boundaries that we have already set in the previous step as Pelt maps are general UV island based. If the initial result isn't perfect, no worries; select the UVs that you would like to adjust, even if it is all of them and apply Relax (located in Tools > Relax in the UV Editor). This will average out the space between UVs and save a lot of tedious work by eliminating the need to adjust each UV manually (**Fig.05**).

Since we have split the helmet down the middle, unwrapping it is fairly easy. By applying a Pelt map to the model and relaxing a few of the trouble areas, we get a fairly clean and easy to read image of our helmet's shell (**Fig.06**).

Fig 04

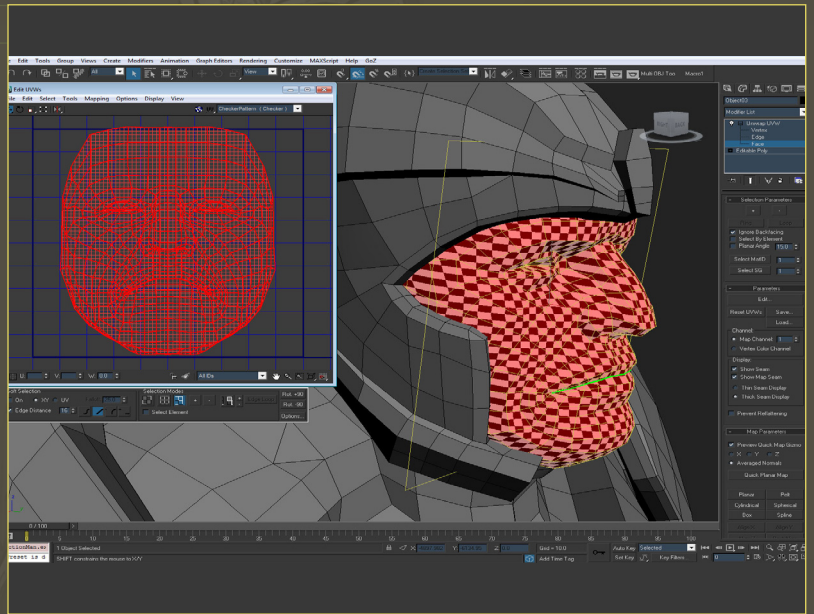


Fig 05

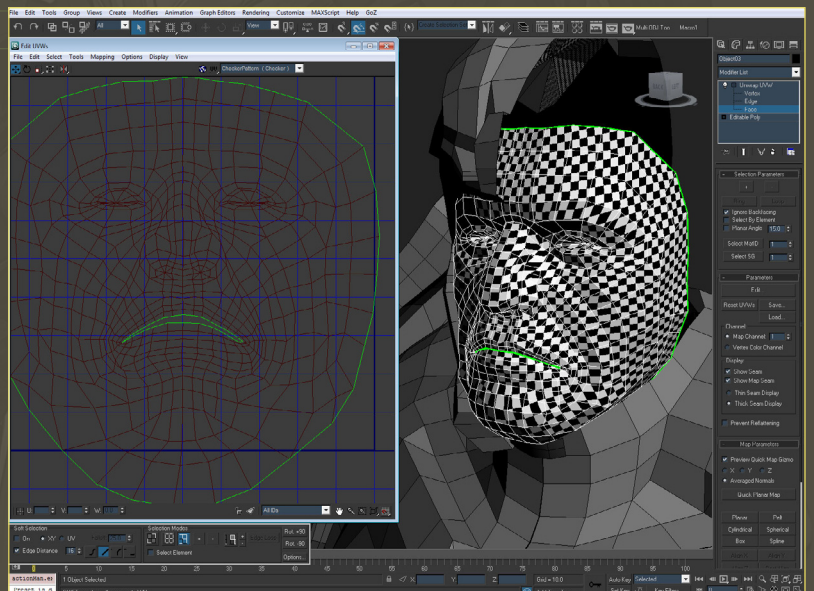
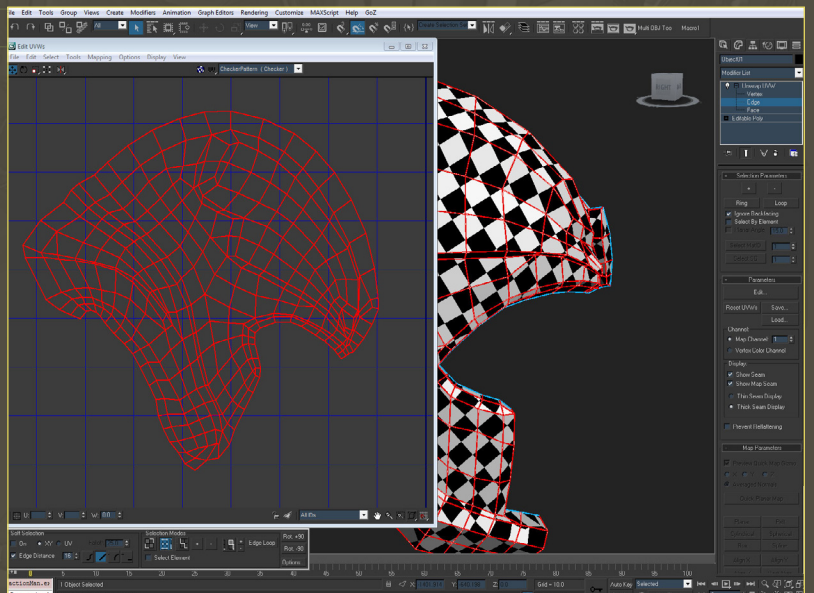


Fig 06







3ds max

## SWORDMASTER 2 Chapter 4 – Unwrapping

3dcreative

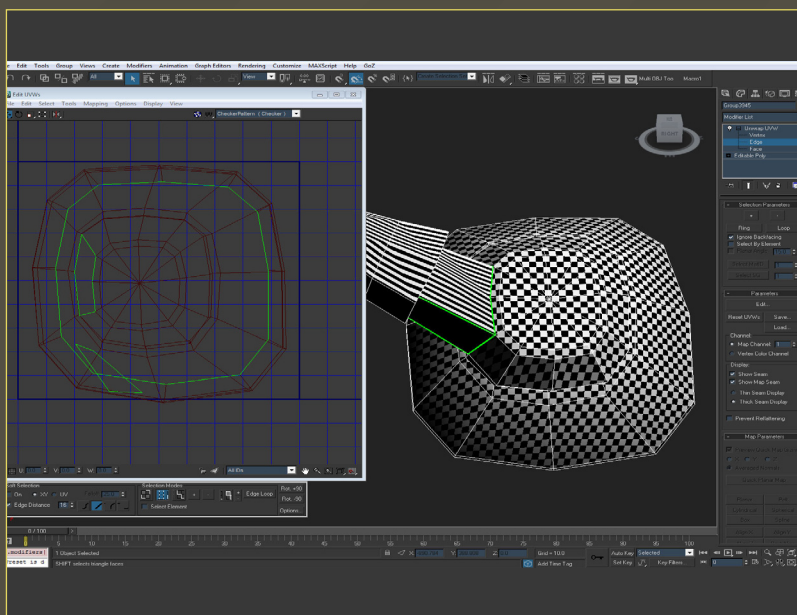


Fig 07

The helmet's antennas are a bit more complicated as there are extrusions that simply can't be connected to the main UV island. This is a good example of the need to find natural UV seams in your model that will be hidden from the viewer and/or easy to paint over in the texturing process. To start it off, select all of the faces in the base of the antenna and apply a Planar map. Grab all of the unrelated faces, the ones belonging to the antenna itself, and move them aside (Fig.07).

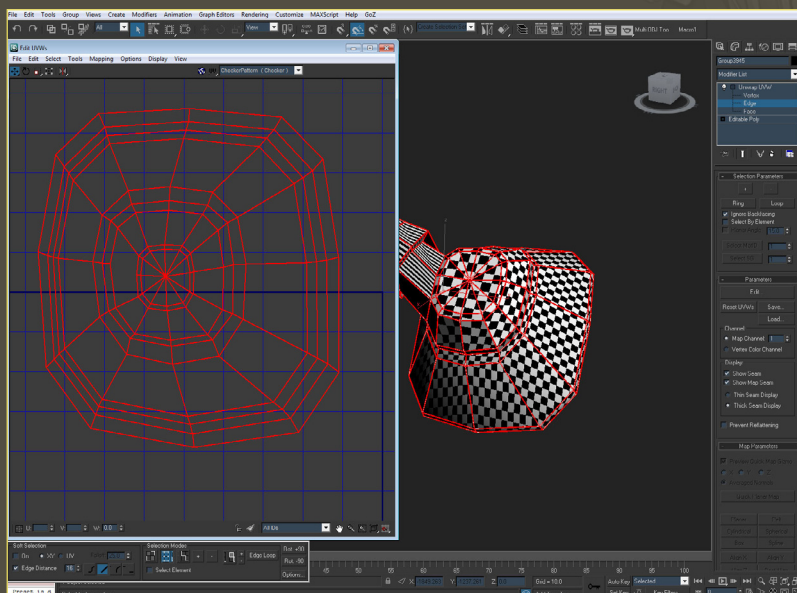


Fig 08

From here, either relax the UVs of the island or grab the outer edge UVs, expand the selection each time and repeat the process. This is a manual way of spreading out the UVs and making sure the original shape of the island remains intact (Fig.08).

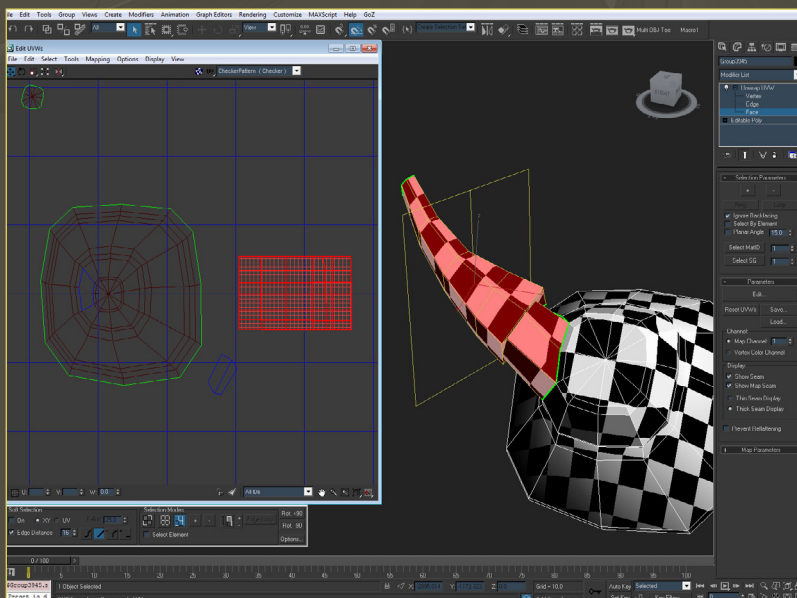


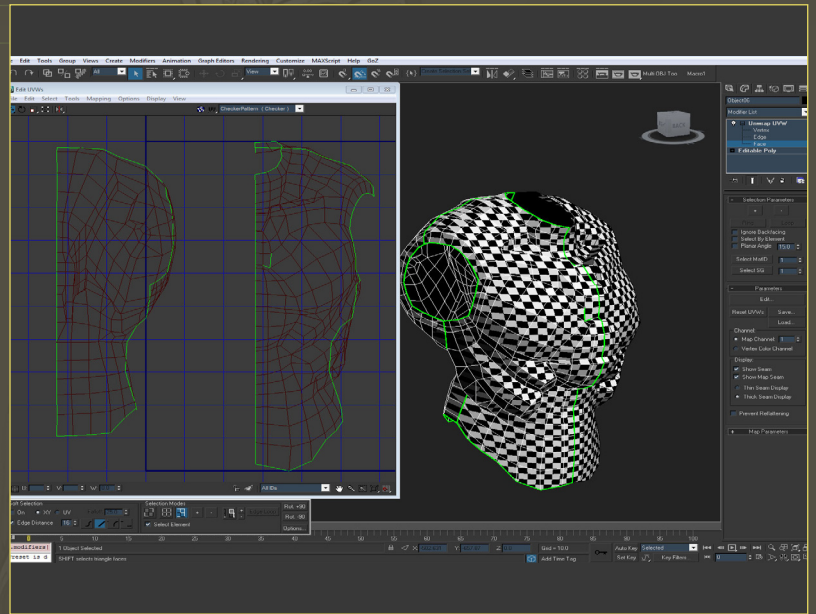
Fig 09

To finish the helmet grab the face of each plane on the antenna and apply a planar projection to each one. This should give four UV islands. Next weld the UVs on the boundaries together, leaving a seam at the bottom of the antenna. Once all of the islands have been merged into one, straighten out the UVs horizontally and vertically. Do this where possible to help save on UV space; irregular shapes can be harder to manage and squeeze into the map, and to assist when texturing as it is generally easier to paint on straight shapes than curves (Fig.09).



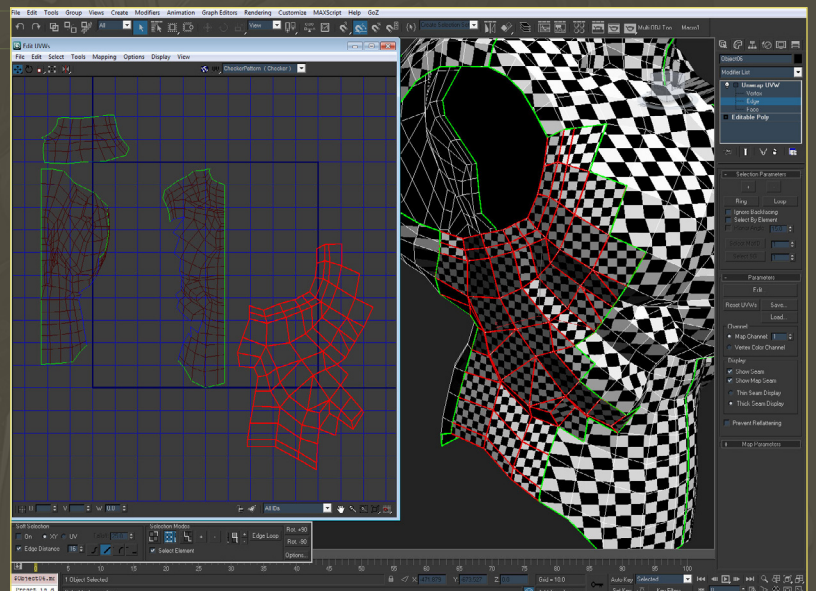
Next we will tackle the torso. At this stage split the body down the middle, unwrap half of it, mirror a duplicate of the model and stitch it together. In my case I have decided to leave the main seam of the torso running down the back as it will usually be covered by the character's cape and is generally easy to paint over. Grab all of the faces and apply a planar projection. This will cause a lot of the faces to overlap as it will be assigning a projection to the front and back of the model, which will overlap on the same plane. Once this is done, grab the faces that make up the back and detach them from the main island, moving the new island off to the side (**Fig.10**).

Fig 10



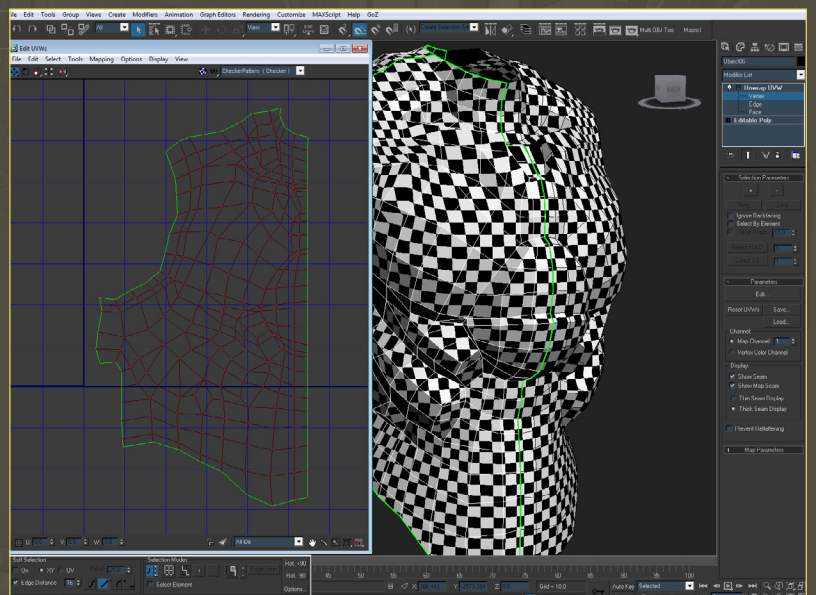
There is a lot of distortion along the side of the character, so grab most of the faces on the rib cage and apply another planar projection that will break these UVs off from the main island and give them a cleaner unwrap (**Fig.11**).

Fig 11



Next line up the rib cage plane as best as possible to the chest and stomach sections. Once you are happy with the positioning, weld the boundaries together and this will result in one island again. I find this method to be less confusing and time-consuming than pulling out each UV individually. If the UVs have become too distorted or if there are overlaps, don't hesitate to grab the UVs and relax them (**Fig.12**).

Fig 12





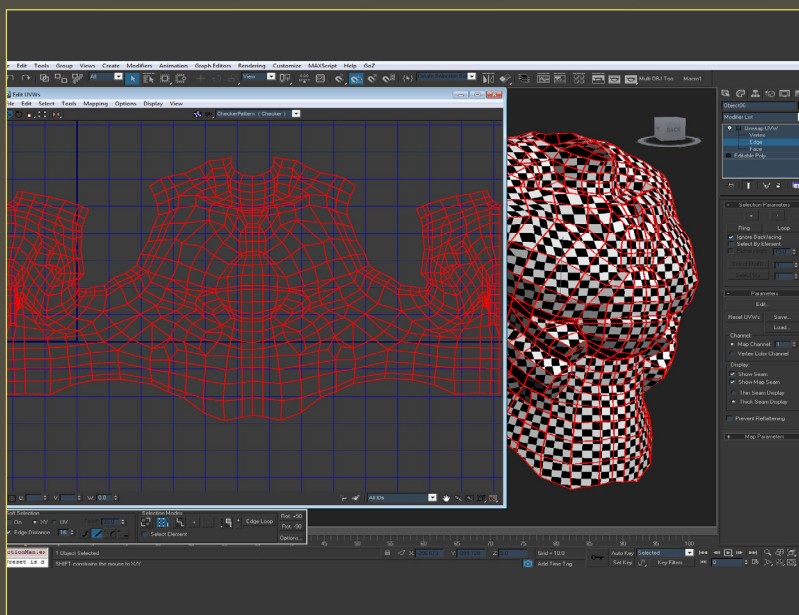


Fig 13

Once you are happy with the chest you basically need to repeat the process for the back section by creating a plane near the obliques and welding them to the main back island. Also tweak the shoulders manually, pulling the UVs out from the main island for less distortion. After both halves are looking good, weld them together along the side of the character and Relax any UVs that might be causing problems.

Next collapse the Unwrap UVW modifier and mirror the model. It is important here to just duplicate the model and not instance it as you will be flipping the UVs on the new model. After you flip the UVs, merge the models together, welding the geometry down the front and back.

Once the model is complete, access the UVs again and weld the UV islands down the chest (Fig.13).

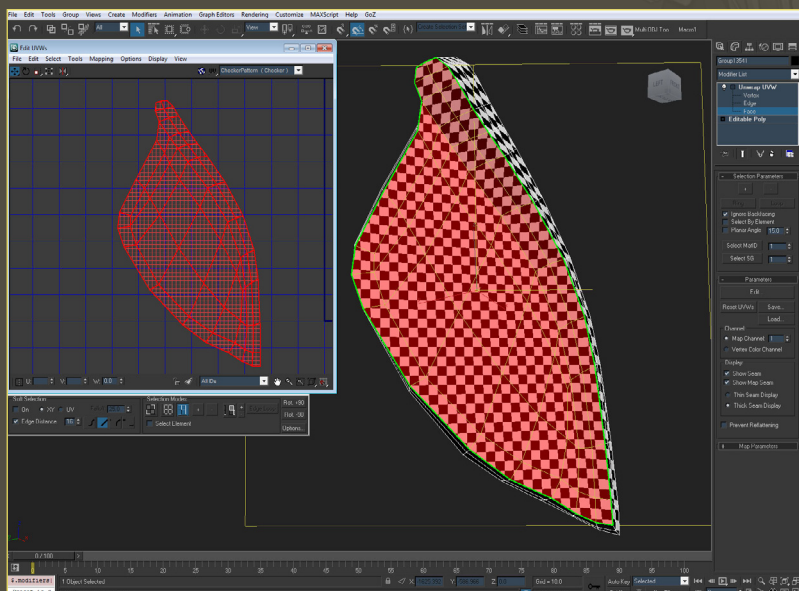


Fig 14

Moving on to the shoulder pads, grab the underside of one half and apply a planar projection. To me, areas like this are an exception to the rule. This is because the geometry only exists to give the model depth and most likely will never be seen or will be very hard to spot. For those reasons these sections would be the first to get less pixels devoted to them in the unwrap, as they will most likely be a solid or a near solid color (Fig.14).

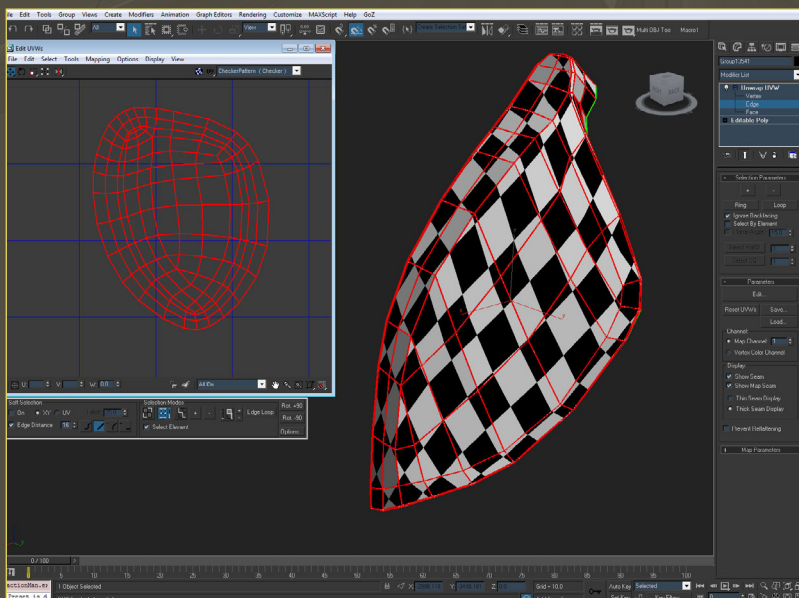


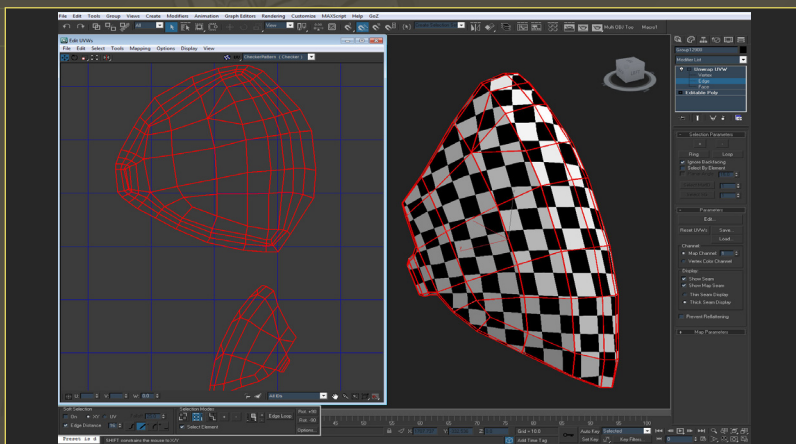
Fig 15

Next grab the remaining faces and pelt map the island. Because we have a well-defined UV boundary the result should be a fairly clean oval type shape. If needed you can relax some UVs or manually push out the outer edges (Fig.15).



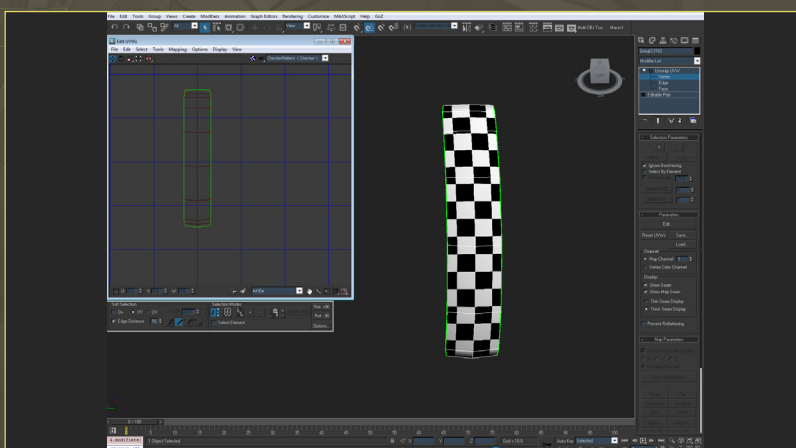
Moving over to the left shoulder pad you basically repeat the process. First break off the underside of the shoulder pad and pelt map the top half, relaxing or manually tweaking problem areas to fix texture distortion (**Fig.16**).

Fig 16



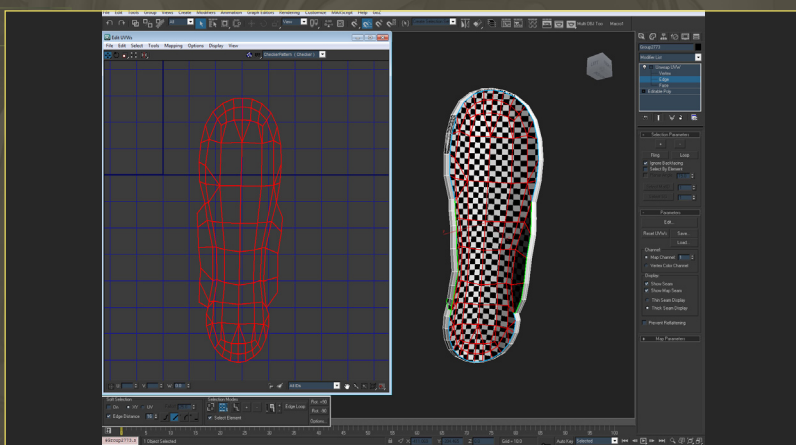
The dividing panel between the halves of the left shoulder pad is fairly easy to handle. Simply apply a planar projection and adjusted the top and bottom UVs for more even pixel distribution (**Fig.17**).

Fig 17



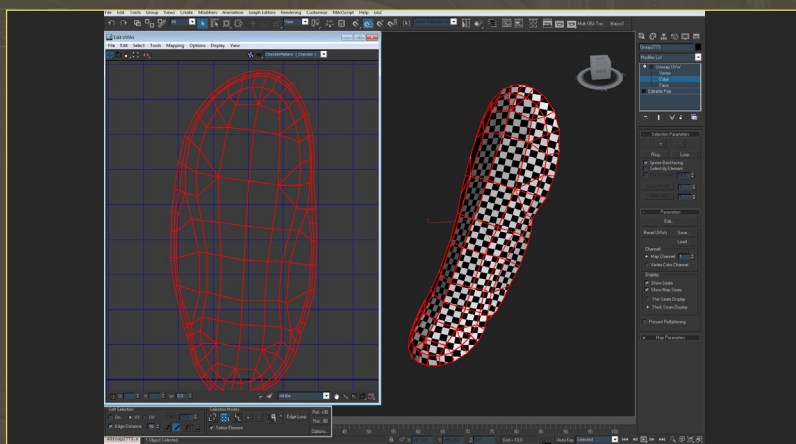
For the forearm armor it is more or less the same situation as the shoulder pads. To begin, grab the underside and apply a simple Planar map. Because the tabs of the forearm armor are connected, they may need to be manually adjusted (**Fig.18**).

Fig 18



Next apply a Pelt map to the top side of the armor plate and relax or manually adjust the UVs where needed (**Fig.19**).

Fig 19





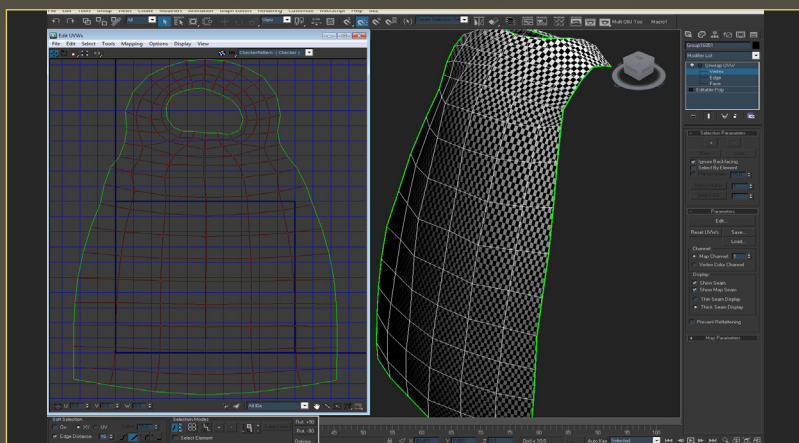


Fig 20

The cape is fairly easy to take care of. Simply make two planar islands, one for the flap covering the back and one for the ring that goes around the shoulders. Once this is done grab both islands and weld their UVs together. Since the cape has a slight flare don't bother straightening out the edges as it could cause the cape's UVs to become distorted (**Fig.20**).

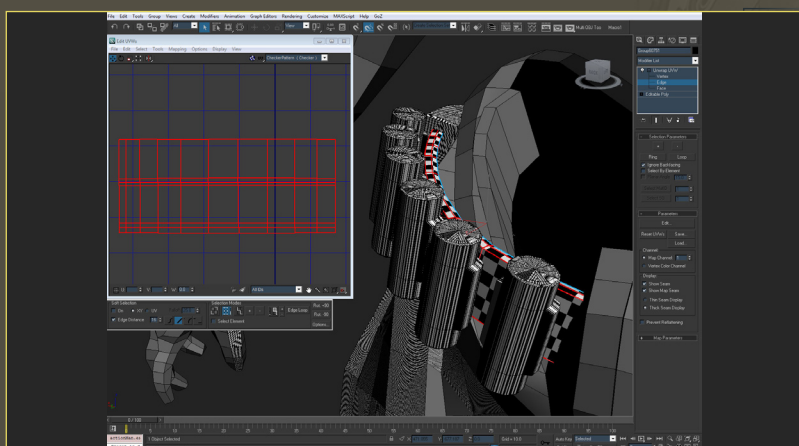


Fig 21

Up next is the belt. This is a pretty simple planar object. Take the time to straighten out the vertical and horizontal edges, again to make the UVs easier to pack in the final map and to make the object easier to read in 2D space. Weld the back of the belt to the main island to avoid a seam on the top of the belt (**Fig.21**).

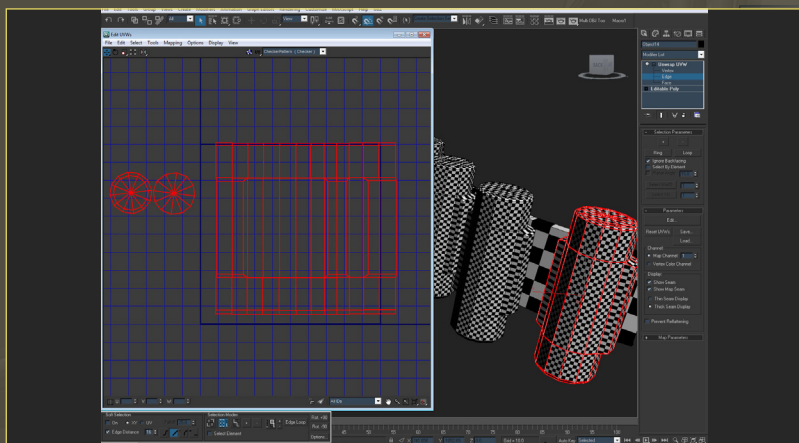


Fig 22

For the ammo apply a cylindrical projection to just one of them and rotate/move the projection controller as needed to get the final result, which should leave the UV seam at the back of the ammo. Also split the top and bottom off into planar projections, but don't bother welding them to the main island as only one edge would be welded, leaving the rest exposed, and it is easier to manage one rectangle and two circles than it is one larger awkward shape. You'll notice that by changing the UVs of one ammo model, all of them should be updated due to the fact that they are instanced copies (**Fig.22**).

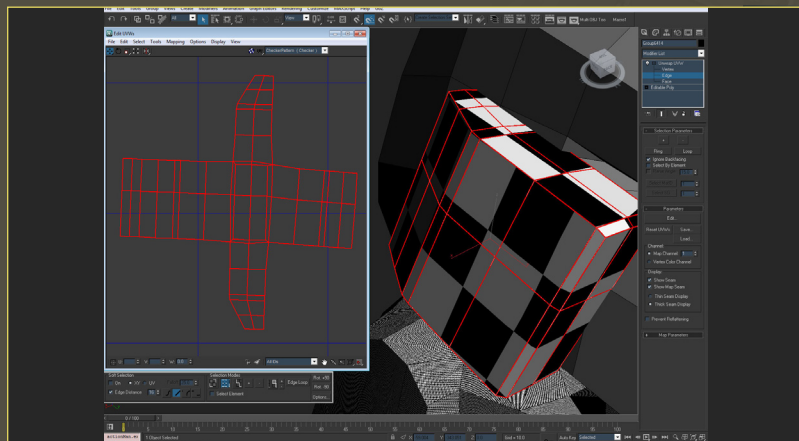


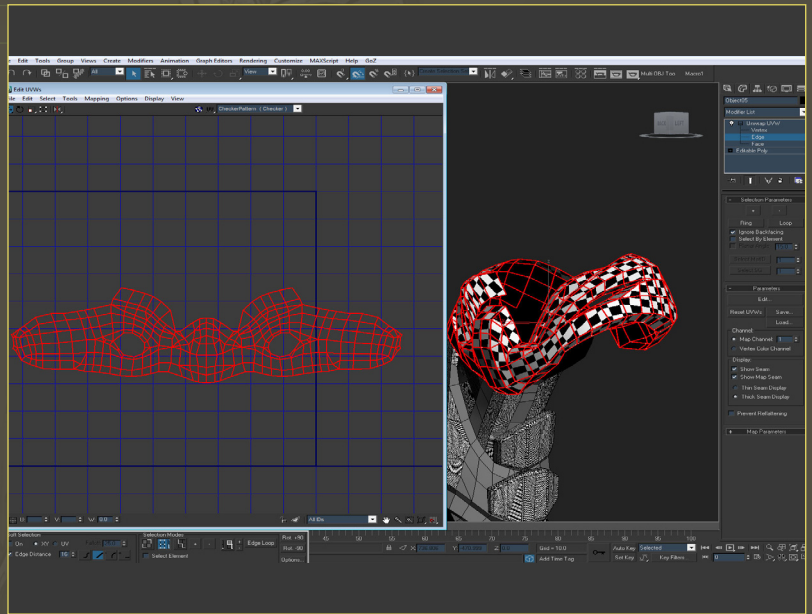
Fig 23

For the belt clip apply a planar projection to each piece and weld them together following the path of least resistance. In my case I choose to have a seam on the top and bottom of the model over the distortion created by compensating for the curve in the geometry (**Fig.23**).



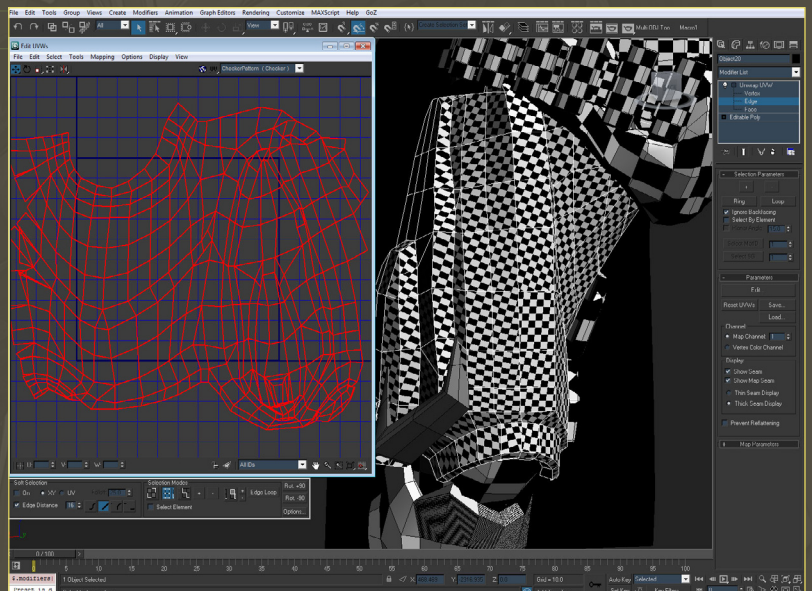
The pelvis armor is similar to the torso piece we covered earlier. Split the model in half and apply planar projections to the front, side and back. You may have to do some clean-up work to spread out the underside of the armor as well as the hole in between layers on the side of the character. Once this is done duplicate the model, mirror it, flip the new model's UVs and merge the models together – welding the geometry at the crotch. Once this is done weld the front UVs in the editor and relax the UVs where needed (**Fig.24**).

Fig 24



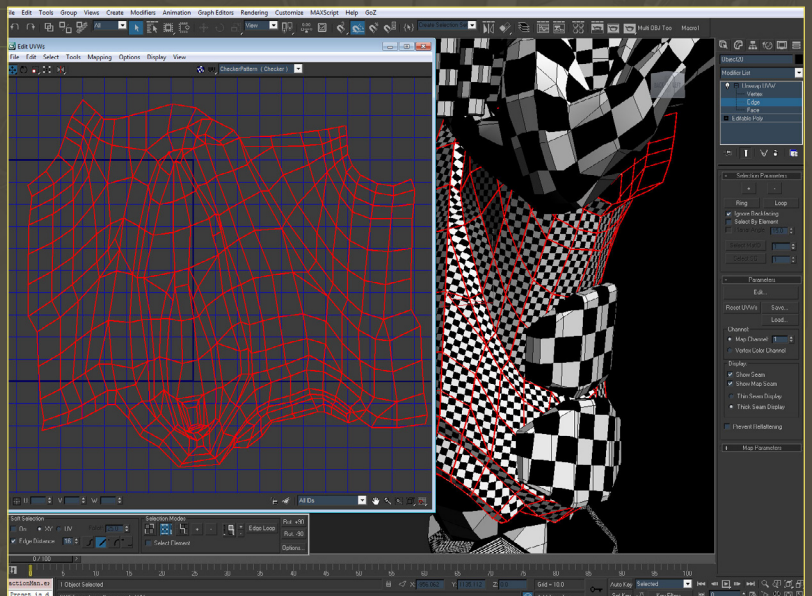
Moving on to the leg armor, assign a cylindrical projection to the model. After adjusting the projection to make the seam on the inner leg, you'll notice that the seam is fairly jagged and not clean at all. This is, however, a very strong starting point for our leg, especially considering that the outer leg only needs some minor clean-up work (**Fig.25**).

Fig 25



Next grab the strips making up the inner leg seam and apply planar projections to them. Once this is done weld them to the main island we previously created and begin, relaxing and tweaking UVs to make the layout as clean as possible (**Fig.26**).

Fig 26







3ds max

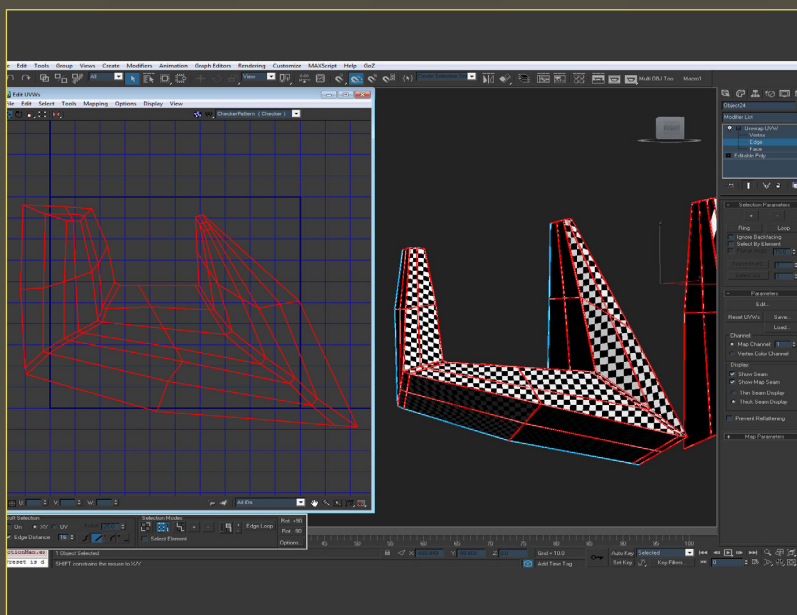


Fig 27

Once the leg UV unwrap is looking good move onto the angular pieces that are separate geometry elements of the leg armor. These pieces are a little tough to get right and will take some massaging. Do a planar projection and manually pull out the UVs as using pelt on this sort of complicated object can lead to weird results that don't resemble the actual model (Fig.27).

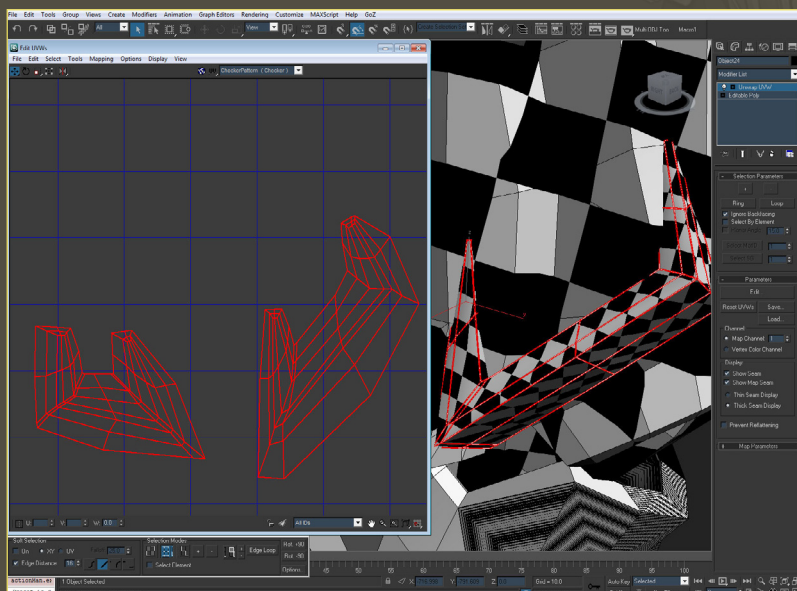


Fig 28

Repeat the process for the other half of the angular details. The shapes are not symmetrical so you don't need to unwrap each one as a unique object (Fig.28).

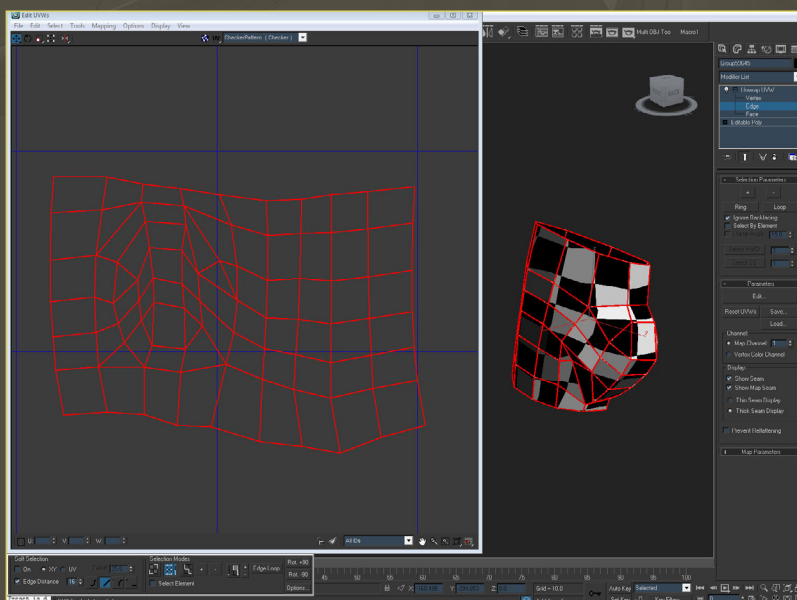


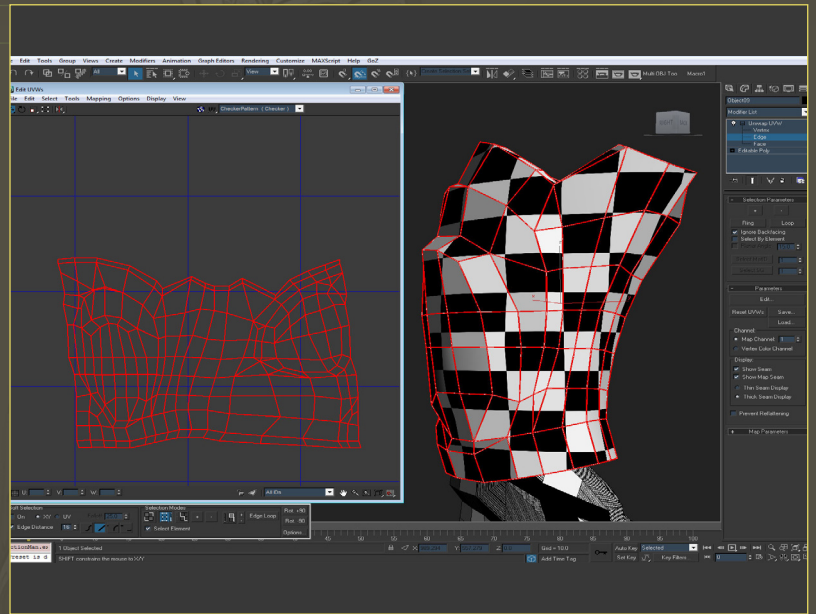
Fig 29

For the knee area, which is our organic element that will enable us to bend the leg naturally, use a simple cylindrical projection, favoring the inner leg for a seam location (Fig.29).



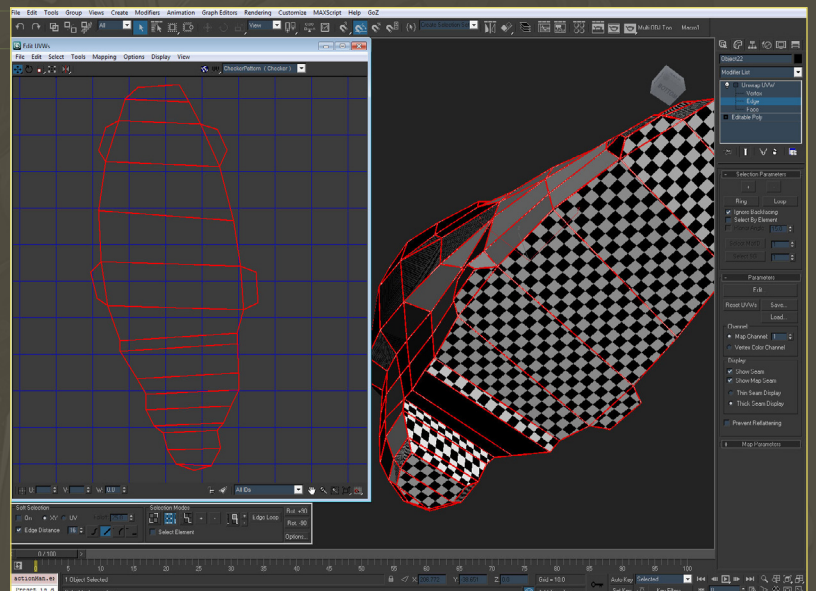
Next up is the lower leg armor. Follow the same technique as in the earlier steps. Analyze the mesh and determine how to break it up by planes and where to leave the UV seam. Split the mesh into three planes, basically the front and two sides, leaving the seam towards the back of the calves where the armor plates meet (Fig.30).

Fig 30



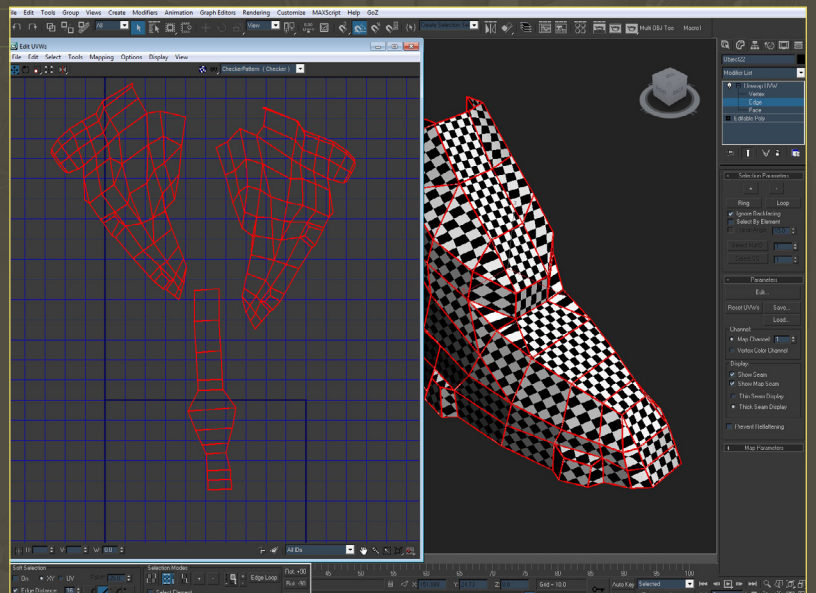
Moving on to the boot model, first grab the bottom of the foot and give it a planar projection. This helps split these UVs off from the main island of UVs that we will be working with and, since the bottom of a character's feet are rarely seen, can be given less real estate if needed (Fig.31).

Fig 31



Next grab the top side of the foot and apply a planar projection, which essentially splits the model in half. Grab the two halves, which should consist of the left and right side of the foot, with a seam running down the back, and apply a Pelt map to each one. Both sides are not identical, so the result will be slightly different, but should be quite similar (Fig.32).

Fig 32







3ds max

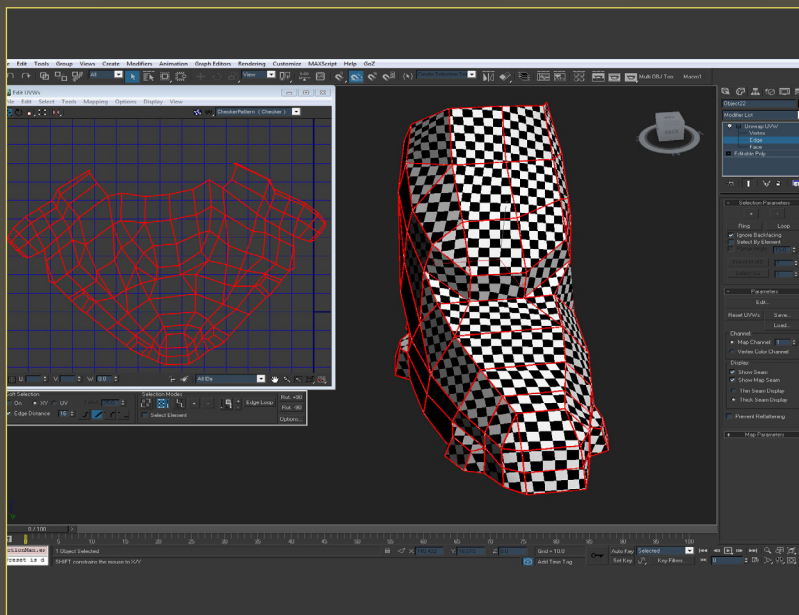


Fig 33

Once you are happy with all three elements, weld the top side of the foot to both halves and leave the seam of the foot near the sole and at the back of the boot near the ankle (**Fig.33**).

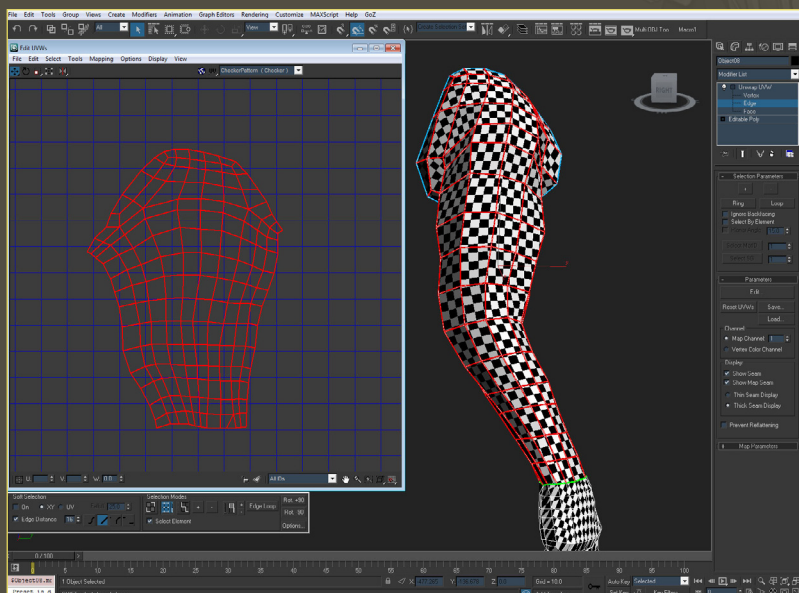


Fig 34

Moving over to the arm and hand, grab the faces that will make up the arm, splitting the two at the wrist. With these faces selected in the UV Editor, detach them and apply a cylindrical projection, leaving the seam on the underside of the arm as this will rarely be seen and mostly covered by armor plates (**Fig.34**).

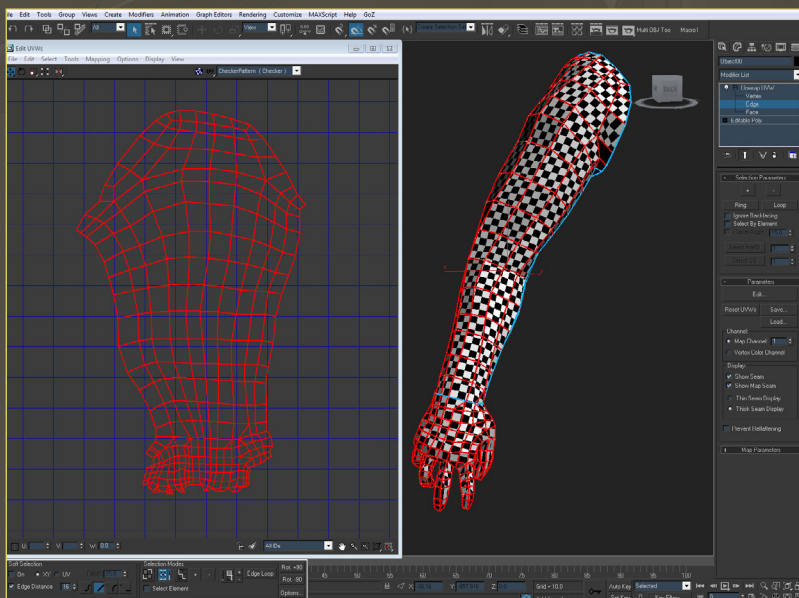


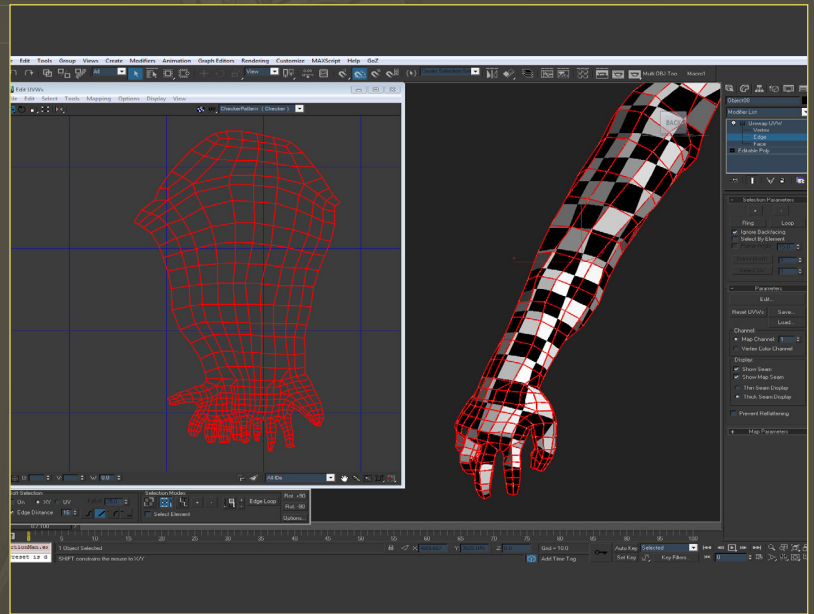
Fig 35

Next split the finger and thumb UVs from the hand and move them aside. Grab the top of the hand and apply a planar projection. Do the same for the palm and weld the two halves together at the bottom of the hand, leaving the seam at the fore finger and thumb. Once this is done weld this new island to the arm at the wrist UVs (**Fig.35**).



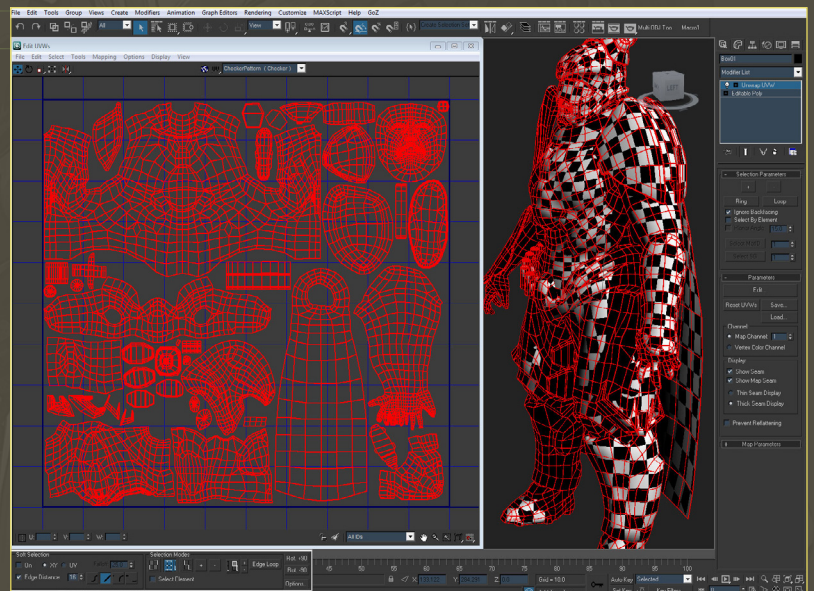
Next, tackle each finger individually. Apply a planar projection to the underside then spread out the UVs manually for the topside islands. Once you are happy with their layout, weld them to the main island consisting of the hand and arm (Fig.36).

Fig 36



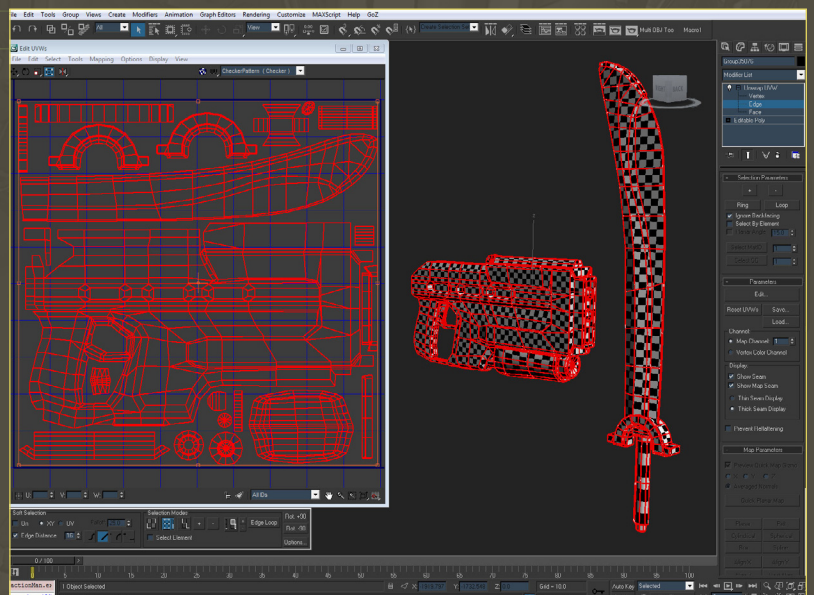
Finally merge the models together, access their UVs, and begin organizing all of the islands into the working 1:1 region of the UV Editor. There is no hard and fast rule as to how things are laid out other than trying to keep the density of each piece equal. Try to line up elements as they are in 3D space so that they can be easily read. A good example of this is the positioning of the leg armor pieces being next to each other and the pelvis being located under the torso (Fig.37).

Fig 37



Unwrapping the weapons is fairly straightforward. Put them on a separate sheet as, in a game, they could be swapped out for other models, need different effects or limitations on them and allow for better asset management. For the most part split each weapon down the middle, like the helmet, and modify a planar projection to try and keep the UVs as solid islands (Fig.38).

Fig 38



## GAVIN GOULDEN

For more from this artist visit:

<http://www.gavimage.com/>

Or contact him at:

[gavin@gavimage.com](mailto:gavin@gavimage.com)



3DTotal presents the new issue of **2DARTIST** magazine: a downloadable monthly magazine for concept art, digital & matte painting for only **£2.75** (approx \$3.78 - €2.93)



**2d artist**  
Concept Art, Digital & Matte Painting Magazine  
Issue 072 December 2011

**Interview**  
A.J. Trahan

**Articles**  
Sketchbook of John Park

**The Gallery**  
Roart, Serge Birault  
and Andreas Rocha, plus more!

**REALM**

We get an exclusive behind the scenes look at Atomhawk Design's wonderfully epic future project Realm.

**Illustrating Fairy Tales**  
In this month's installment of Illustration Fairy Tales **Simon Dominic Brewer** shows us how to paint the tale of Rapunzel.

**Creating New Worlds**  
**David Smit** and **Nadia Karroue** continue their cool series by showing us how they tackle the illustrations of their new world.

**Character Portrayal**  
In the final chapter of our Character Portrayal series **Irvin Rodriguez** shows us how to paint a tattooed character.

visit **WWW.2DARTISTMAG.COM** to download the free 'lite' issue, the full issue, subscription offers and to purchase back issues.





# SWORDMASTER 2



## CHAPTER 4 – UNWRAPPING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.

CHAPTER 1 | OCTOBER ISSUE 074  
Base model

CHAPTER 2 | NOVEMBER ISSUE 075  
Sculpting

CHAPTER 3 | DECEMBER ISSUE 076  
Low Poly Model

CHAPTER 4 | THIS ISSUE  
Unwrapping

CHAPTER 5 | NEXT ISSUE  
Texturing

CHAPTER 6 | MARCH ISSUE 079  
Rendering





## CHAPTER 4 – UNWRAPPING

Software used: Maya

### INTRODUCTION

In this chapter we will be covering the creation of a UV map for our character. A nice, clean unwrap is usually an overlooked part of the process that is extremely important to our final product. With a well laid out UV map you can benefit the most from texture resolution and cleaner texture bakes when creating Normal and Ambient Occlusion maps.

To begin, analyze what parts of your low poly mesh can be unwrapped once and mirrored for optimal UVs. In earlier steps we covered instancing objects for this reason, such as the bullets and shoulder pad panels. In an ideal world everything would be unique and have finer details to create asymmetrical detail, but given modern day standards it is wise to mirror sections that are not focus points and leave asymmetrical detail to larger, iconic pieces. For this character I suggest mirroring the limbs, half of the shoulder pads and the helmet, leaving the chest and face as fully unique objects (**Fig.01**).

Create a standard material and assign a checker board pattern texture to the Diffuse slot. Using a checker pattern is a great way to make sure that all of the elements in your UV map are taking up the correct amount of space. For example, seeing many tiny squares on the chest and only a few large squares on the arm can tell you that you need to devote more UV space to the arm, or less to the chest, to make them more equal. This is important during texturing as you will want an even texel density along the mesh to make sure details are at the same scale.

In Maya, access the Material Editor by navigating to Rendering Editors > Hypershade. Select a shader ball or create a new one and navigate to the material's properties. From here click on the button next to Color and choose Checker from the list. Once this is done

Fig 01

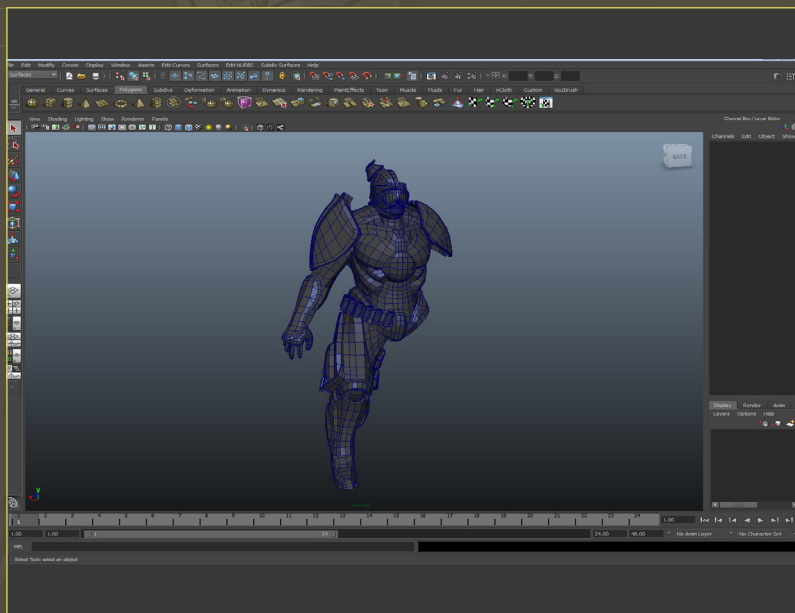


Fig 02

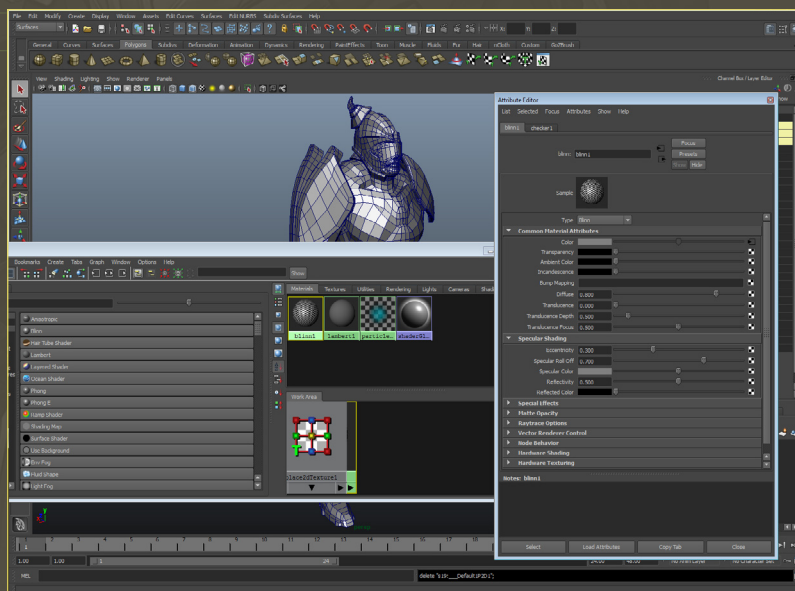
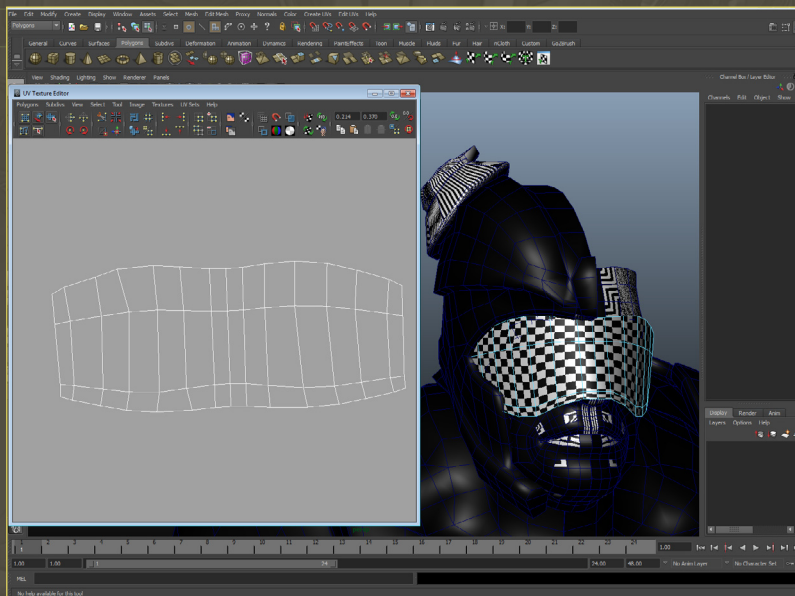


Fig 03





properties will be available to you so that you can alter the checker's appearance. I usually just stick with the normal black and white checkers and set the tiling to 25 x 25. Having more checkers visible to you just makes it easier to visualize the real estate each piece of the mesh is taking up, and having equal U and V tiles ensures that the checkers will be square. Once the shader is set up, select all of the objects in the scene and assign the new checker material to them (**Fig.02**).

Grab the visor and begin creating UVs for the model by first navigating to Window > UV Texture Editor, which will allow you to visualize and access the model's UVs and begin applying projections to the model by navigating to Create UVs and selecting a projection. Based on the appearance of the checkers you can see that there will be some distortion along the edges of the visor. In the UV editor grab these UVs and pull them left or right. Make sure that Constant Update (located in the Options) is enabled to immediately see these changes in real time.

Other tools like Pelt (known in Maya as Unfold) and Relax can be accessed through either the Polygons tab in the UV Editor or in Edit UVs (**Fig.03**).

Up next is the face. After applying the modifier grab all of the faces and assign a simple planar projection to the model. This will cause some significant distortion towards the edge of the face and the sides of the nose, but will give us a solid starting point (**Fig.04**).

From here apply a Pelt map to the model. This will be based off of the boundaries that we had already set in the previous step as Pelt maps are general UV island based. If the initial result isn't perfect there is no need to worry. Select the UV's that you would like to adjust even if it is all of them and apply Relax. This will average out the space between UV's and save a lot of tedious work by eliminating the need to adjust each UV manually (**Fig.05**).

Fig 04

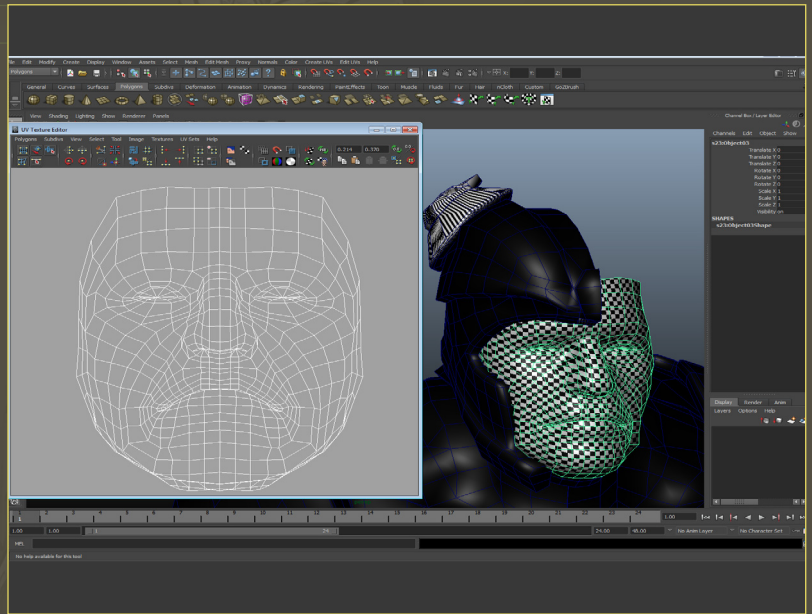


Fig 05

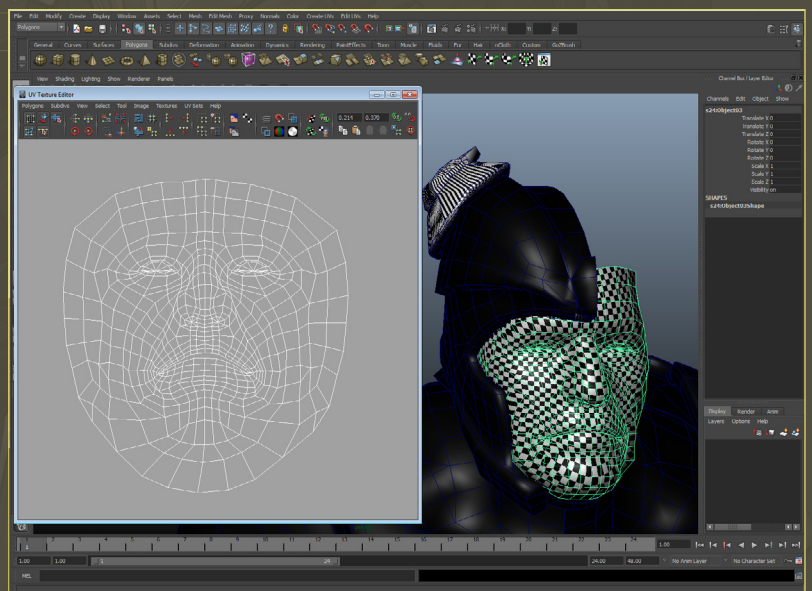
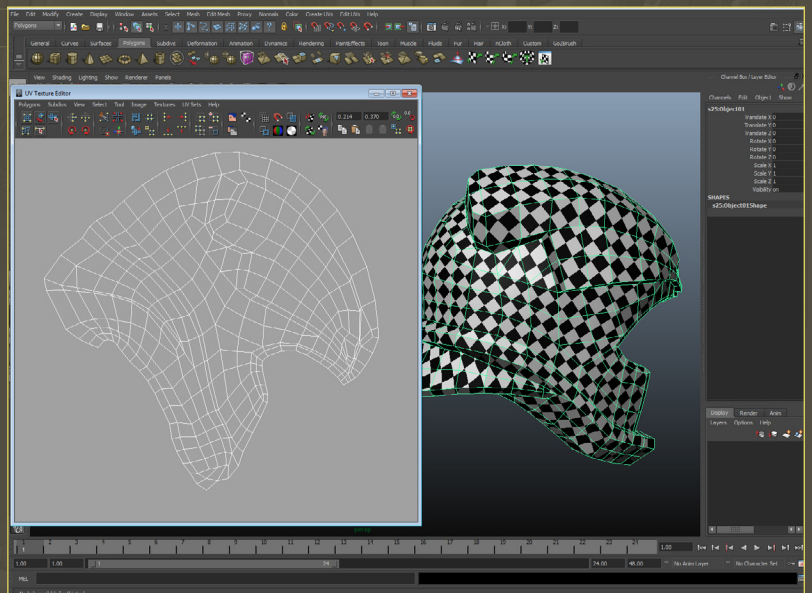


Fig 06





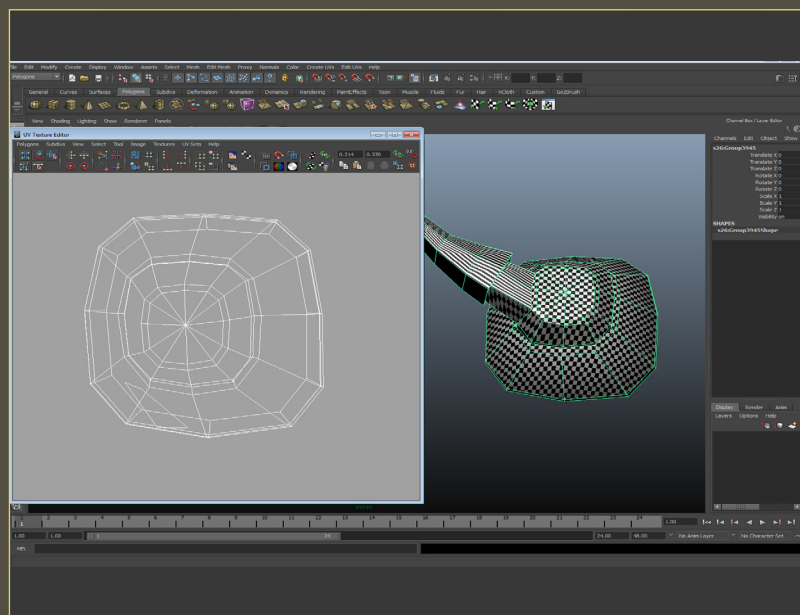


Fig 07

Since we have split the helmet down the middle, unwrapping it is fairly easy. By applying a Pelt map to the model and relaxing a few of the trouble areas, we get a fairly clean and easy to read image of our helmet's shell (Fig.06).

The helmet's antennas are a bit more complicated as there are extrusions that simply can't be connected to the main UV island. This is a good example of the need to find natural UV seams in your model that will be hidden from the viewer and/or easy to paint over in the texturing process. To start it off, select all of the faces in the base of the antenna and apply a Planar map. Grab all of the unrelated faces, the ones belonging to the antenna itself, and move them aside (Fig.07).

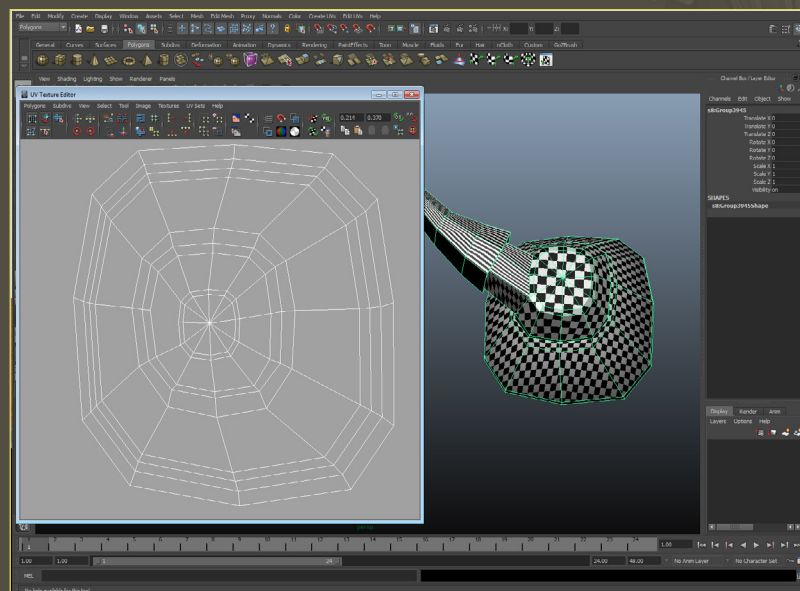


Fig 08

From here, either relax the UVs of the island or grab the outer edge UVs, expand the selection scale, shrink the selection each time and repeat the process. This is a manual way of spreading out the UVs and making sure the original shape of the island remains intact (Fig.08).

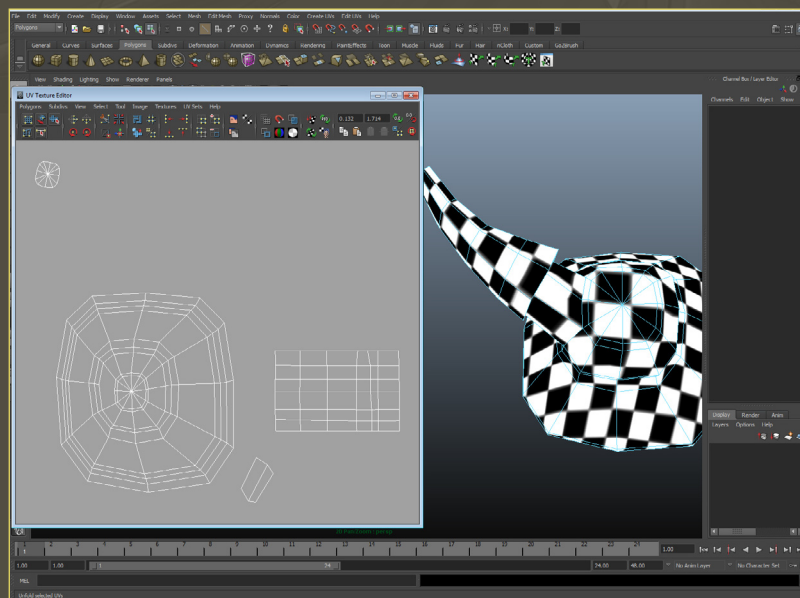


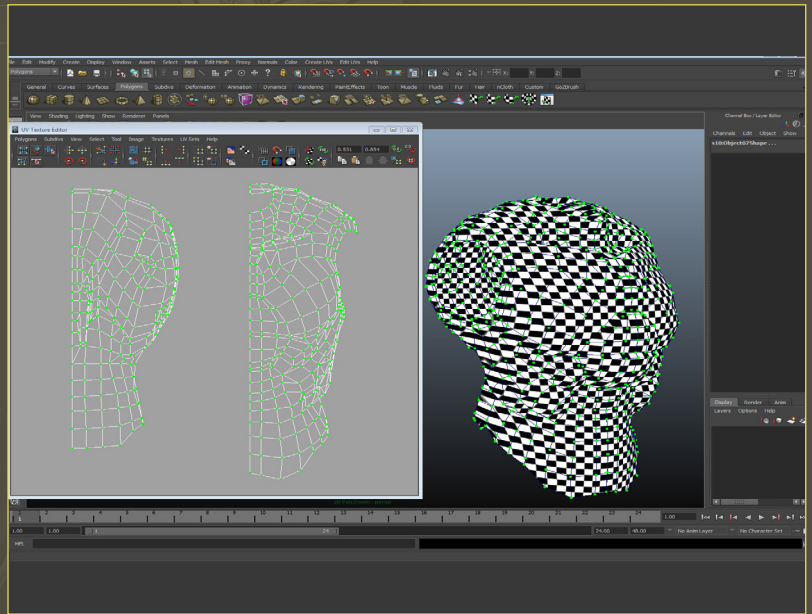
Fig 09

To finish the helmet grab the face of each plane on the antenna and apply a planar projection to each one. This should give four UV islands. Next weld the UVs on the boundaries together, leaving a seam at the bottom of the antenna. Once all of the islands have been merged into one, straighten out the UVs horizontally and vertically. Do this where possible to help save on UV space; irregular shapes can be harder to manage and squeeze into the map, and to assist when texturing as it is generally easier to paint on straight shapes than curves (Fig.09).



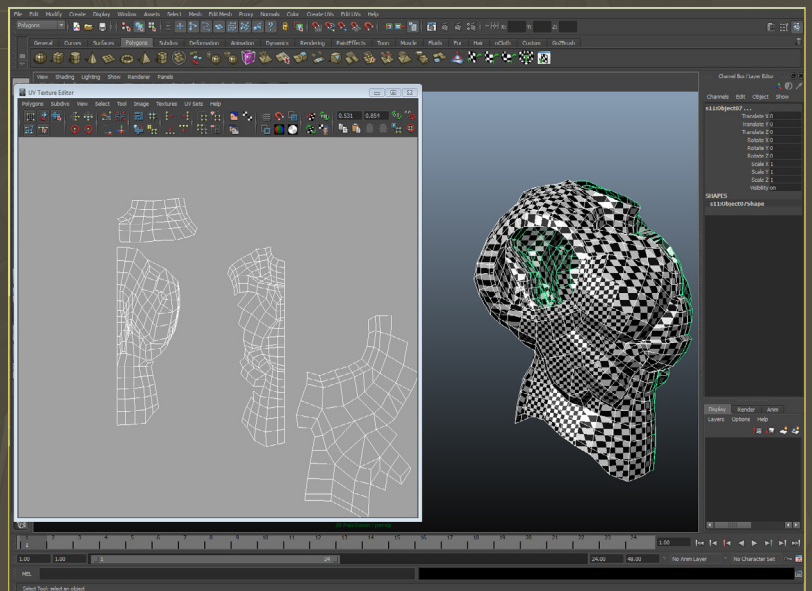
Next we will tackle the torso. At this stage split the body down the middle, unwrap half of it, mirror a duplicate of the model and stitch it together. In my case I have decided to leave the main seam of the torso running down the back as it will usually be covered by the character's cape and is generally easy to paint over. Grab all of the faces and apply a planar projection. This will cause a lot of the faces to overlap as it will be assigning a projection to the front and back of the model, which will overlap on the same plane. Once this is done, grab the faces that make up the back and detach them from the main island, moving the new island off to the side (**Fig.10**).

Fig 10



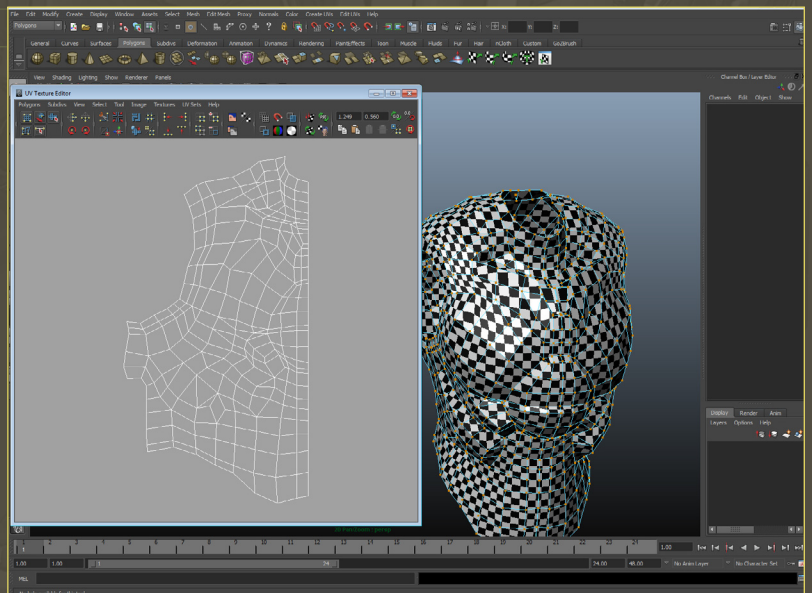
There is a lot of distortion along the side of the character, so grab most of the faces on the rib cage and apply another planar projection that will break these UVs off from the main island and give them a cleaner unwrap (**Fig.11**).

Fig 11



Next line up the rib cage plane as best as possible to the chest and stomach sections. Once you are happy with the positioning, weld the boundaries together and this will result in one island again. I find this method to be less confusing and time-consuming than pulling out each UV individually. If the UVs have become too distorted or if there are overlaps, don't hesitate to grab the UVs and relax them (**Fig.12**).

Fig 12





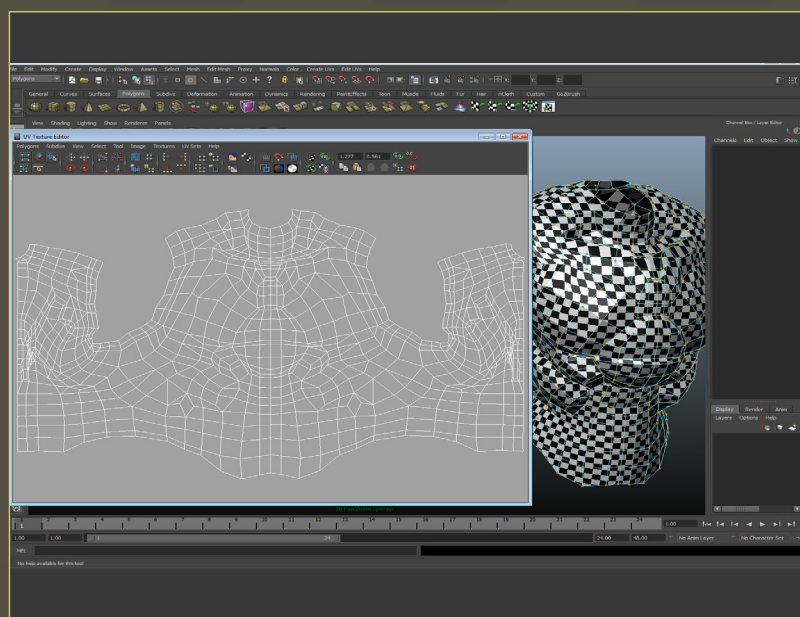


Fig 13

Once you are happy with the chest you basically need to repeat the process for the back section by creating a plane near the obliques and welding them to the main back island. Also tweak the shoulders manually, pulling the UVs out from the main island for less distortion. After both halves are looking good, weld them together along the side of the character and Relax any UVs that might be causing problems.

Next collapse the Unwrap UVW modifier and mirror the model. It is important here to just duplicate the model and not instance it as you will be flipping the UVs on the new model. After you flip the UVs, merge the models together, welding the geometry down the front and back.

Once the model is complete, access the UVs again and weld the UV islands down the chest (Fig.13).

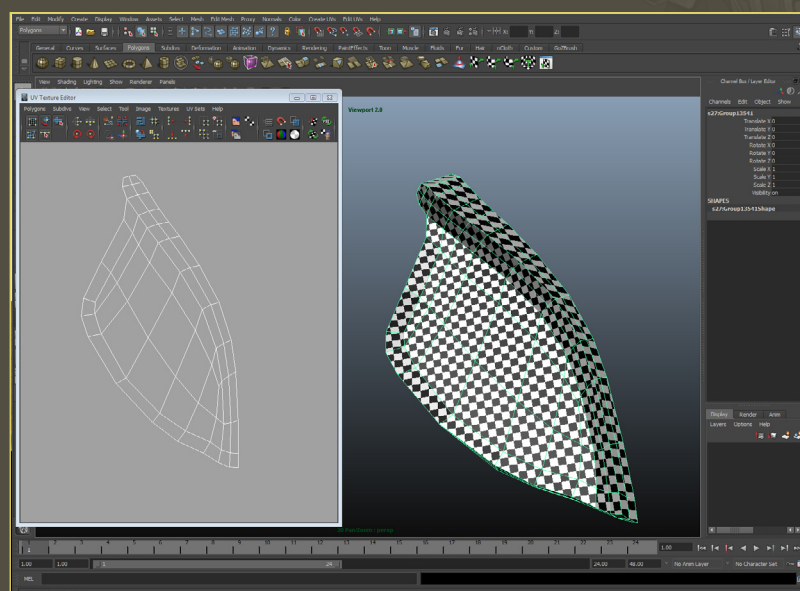


Fig 14

Moving on to the shoulder pads, grab the underside of one half and apply a planar projection. To me, areas like this are an exception to the rule. This is because the geometry only exists to give the model depth and most likely will never be seen or will be very hard to spot. For those reasons these sections would be the first to get less pixels devoted to them in the unwrap, as they will most likely be a solid or a near solid color (Fig.14).

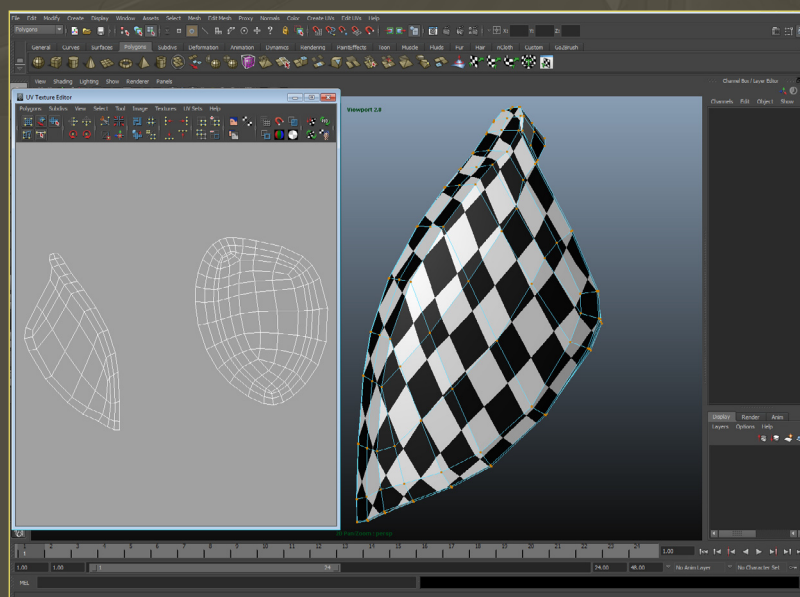


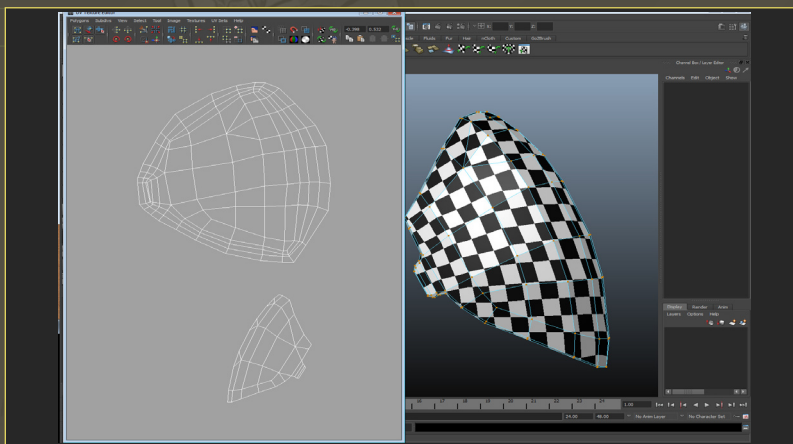
Fig 15

Next grab the remaining faces and pelt map the island. Because we have a well-defined UV boundary the result should be a fairly clean oval type shape. If needed you can relax some UVs or manually push out the outer edges (Fig.15).



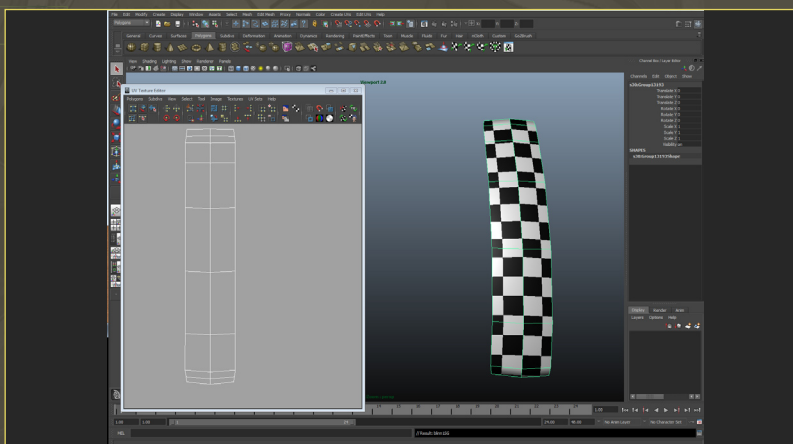
Moving over to the left shoulder pad you basically repeat the process. First break off the underside of the shoulder pad and pelt map the top half, relaxing or manually tweaking problem areas to fix texture distortion (**Fig.16**).

Fig 16



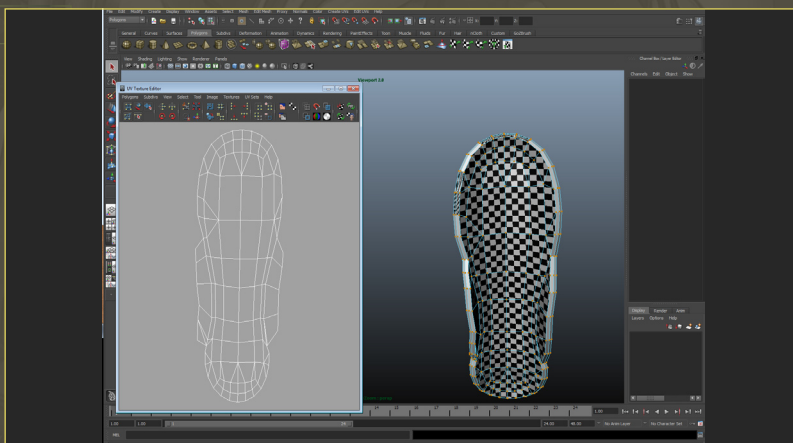
The dividing panel between the halves of the left shoulder pad is fairly easy to handle. Simply apply a planar projection and adjusted the top and bottom UVs for more even pixel distribution (**Fig.17**).

Fig 17



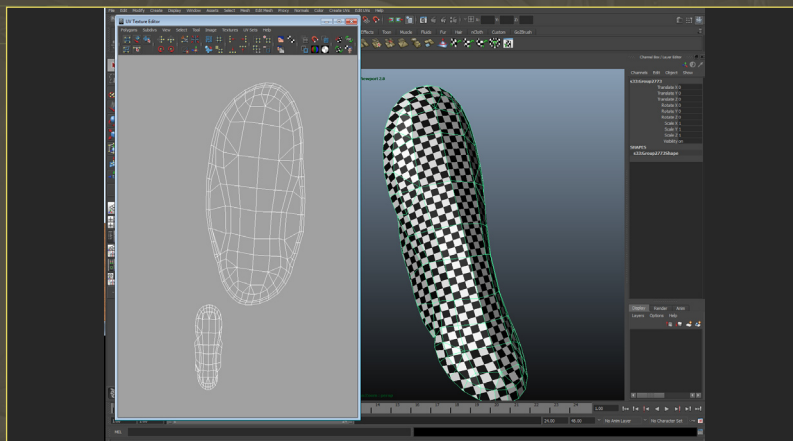
For the forearm armor it is more or less the same situation as the shoulder pads. To begin, grab the underside and apply a simple Planar map. Because the tabs of the forearm armor are connected, they may need to be manually adjusted (**Fig.18**).

Fig 18



Next apply a Pelt map to the top side of the armor plate and relax or manually adjust the UVs where needed (**Fig.19**).

Fig 19





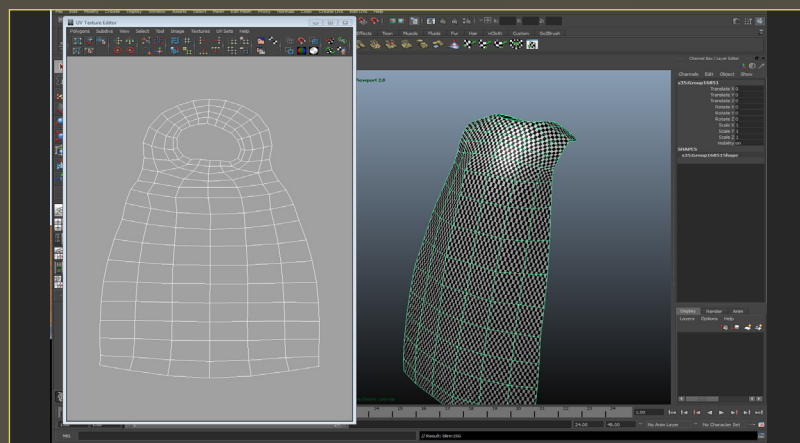


Fig 20

The cape is fairly easy to take care of. Simply make two planar islands, one for the flap covering the back and one for the ring that goes around the shoulders. Once this is done grab both islands and weld their UVs together. Since the cape has a slight flare don't bother straightening out the edges as it could cause the cape's UVs to become distorted (**Fig.20**).

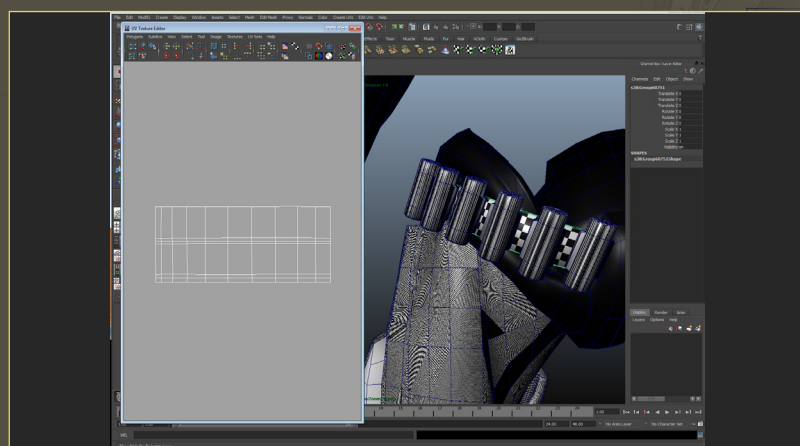


Fig 21

Up next is the belt. This is a pretty simple planar object. Take the time to straighten out the vertical and horizontal edges, again to make the UVs easier to pack in the final map and to make the object easier to read in 2D space. Weld the back of the belt to the main island to avoid a seam on the top of the belt (**Fig.21**).

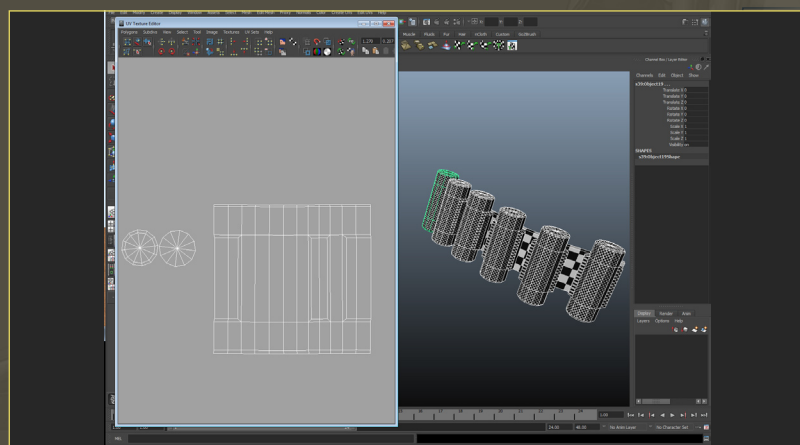


Fig 22

For the ammo apply a cylindrical projection to just one of them and rotate/move the projection controller as needed to get the final result, which should leave the UV seam at the back of the ammo. Also split the top and bottom off into planar projections, but don't bother welding them to the main island as only one edge would be welded, leaving the rest exposed, and it is easier to manage one rectangle and two circles than it is one larger awkward shape. You'll notice that by changing the UVs of one ammo model, all of them should be updated due to the fact that they are instanced copies (**Fig.22**).

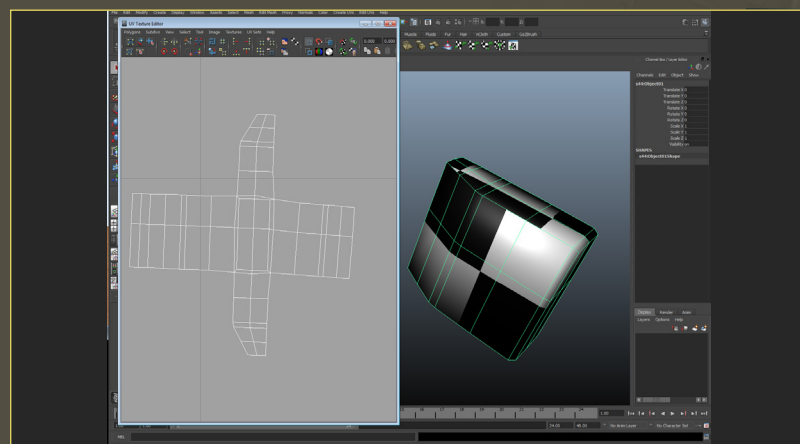


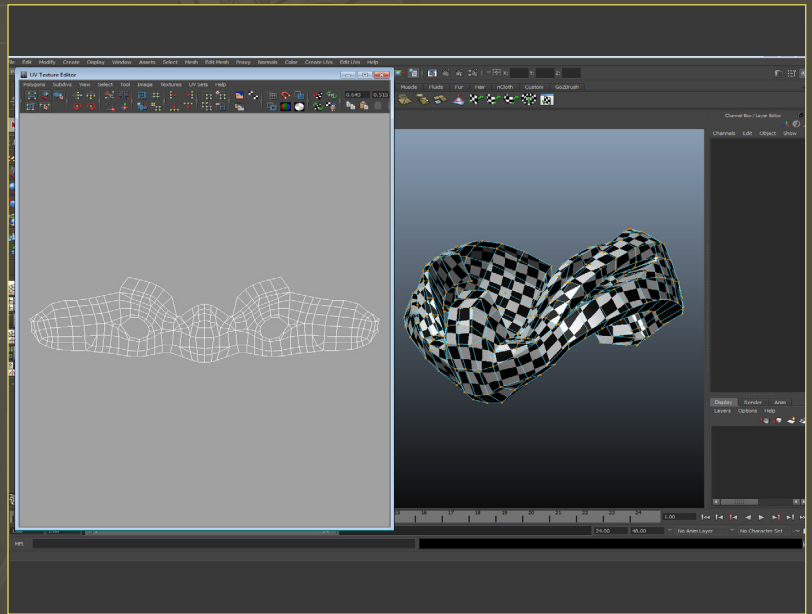
Fig 23

For the belt clip apply a planar projection to each piece and weld them together following the path of least resistance. In my case I choose to have a seam on the top and bottom of the model over the distortion created by compensating for the curve in the geometry (**Fig.23**).



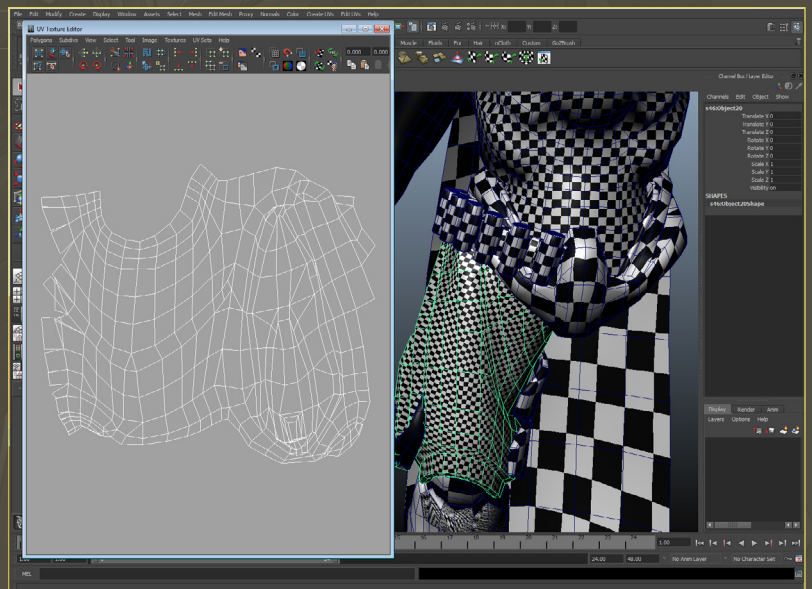
The pelvis armor is similar to the torso piece we covered earlier. Split the model in half and apply planar projections to the front, side and back. You may have to do some clean-up work to spread out the underside of the armor as well as the hole in between layers on the side of the character. Once this is done duplicate the model, mirror it, flip the new model's UVs and merge the models together – welding the geometry at the crotch. Once this is done weld the front UVs in the editor and relax the UVs where needed (**Fig.24**).

Fig 24



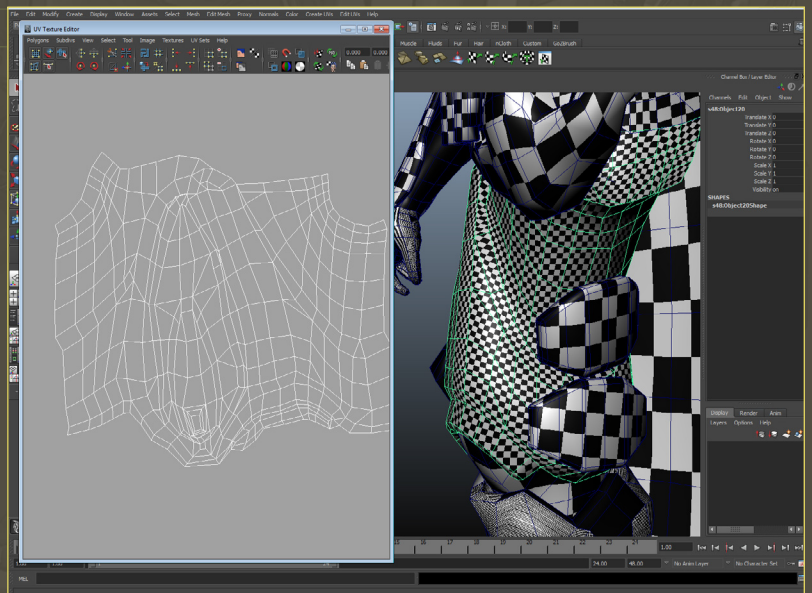
Moving on to the leg armor, assign a cylindrical projection to the model. After adjusting the projection to make the seam on the inner leg, you'll notice that the seam is fairly jagged and not clean at all. This is, however, a very strong starting point for our leg, especially considering that the outer leg only needs some minor clean-up work (**Fig.25**).

Fig 25



Next grab the strips making up the inner leg seam and apply planar projections to them. Once this is done weld them to the main island we previously created and begin, relaxing and tweaking UVs to make the layout as clean as possible (**Fig.26**).

Fig 26





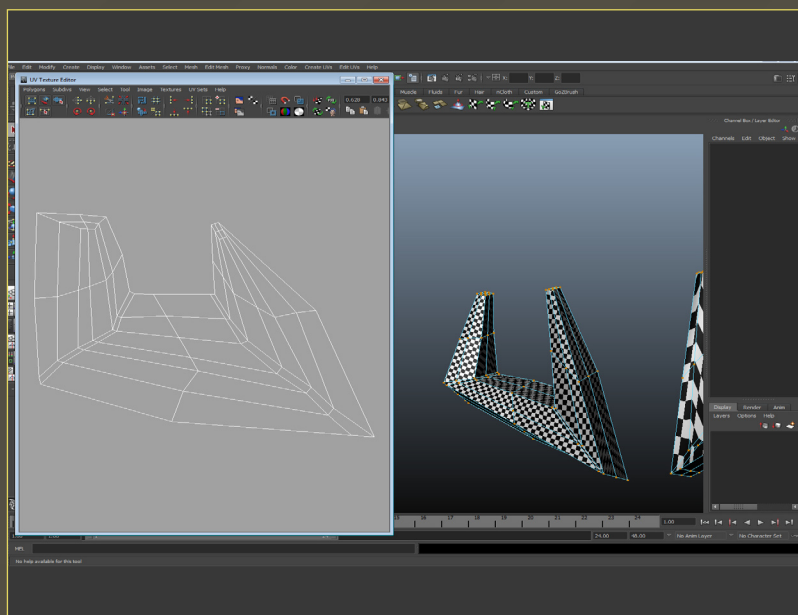


Fig 27

Once the leg UV unwrap is looking good move onto the angular pieces that are separate geometry elements of the leg armor. These pieces are a little tough to get right and will take some massaging. Do a planar projection and manually pull out the UVs as using pelt on this sort of complicated object can lead to weird results that don't resemble the actual model (Fig.27).

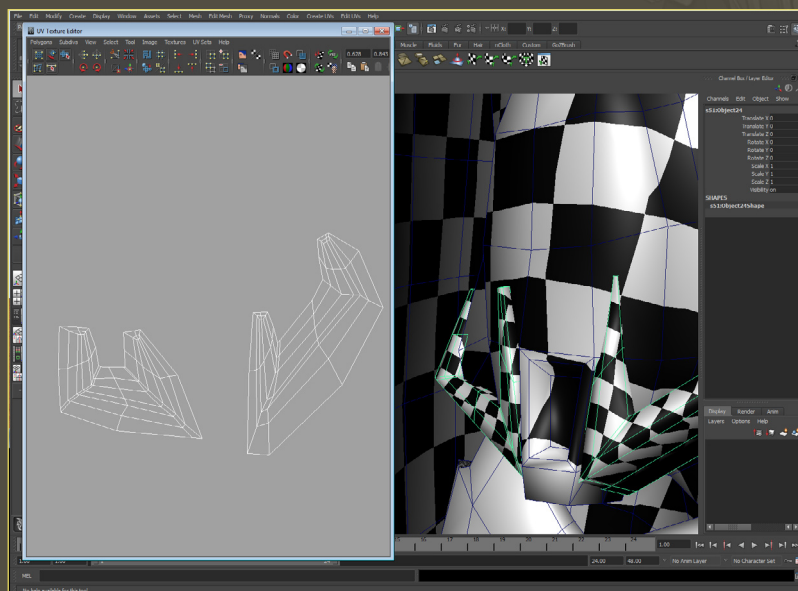


Fig 28

Repeat the process for the other half of the angular details. The shapes are not symmetrical so you don't need to unwrap each one as a unique object (Fig.28).

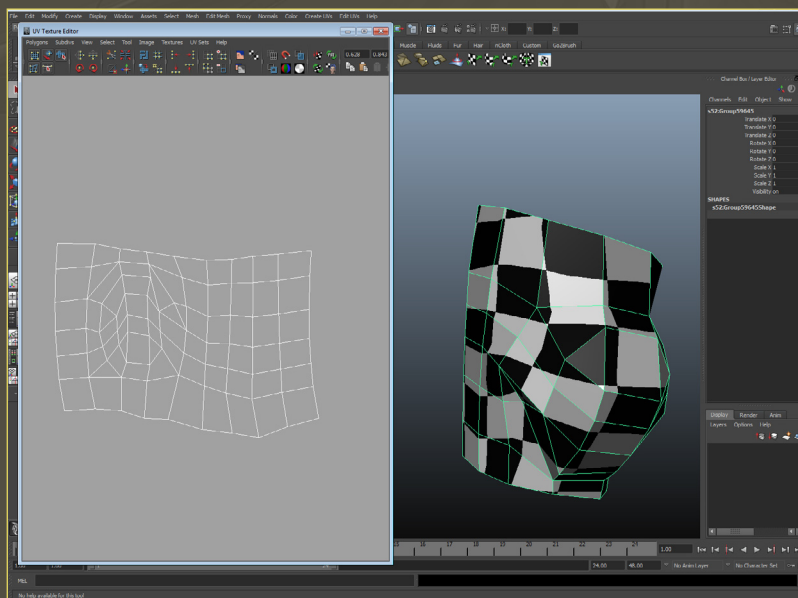


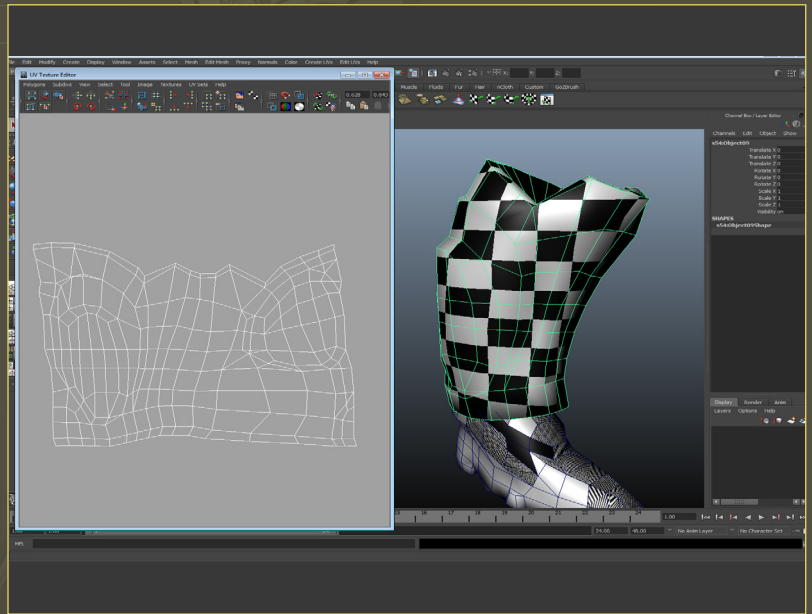
Fig 29

For the knee area, which is our organic element that will enable us to bend the leg naturally, use a simple cylindrical projection, favoring the inner leg for a seam location (Fig.29).



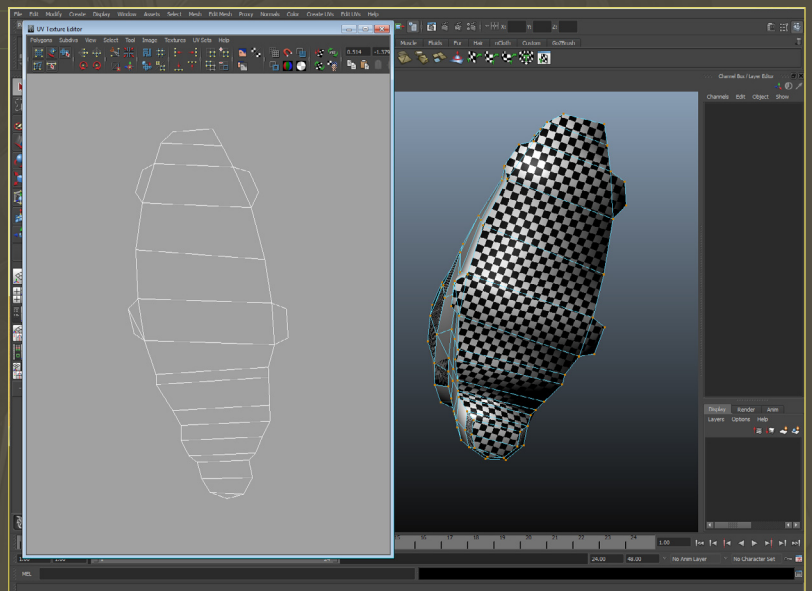
Next up is the lower leg armor. Follow the same technique as in the earlier steps. Analyze the mesh and determine how to break it up by planes and where to leave the UV seam. Split the mesh into three planes, basically the front and two sides, leaving the seam towards the back of the calves where the armor plates meet (Fig.30).

Fig 30



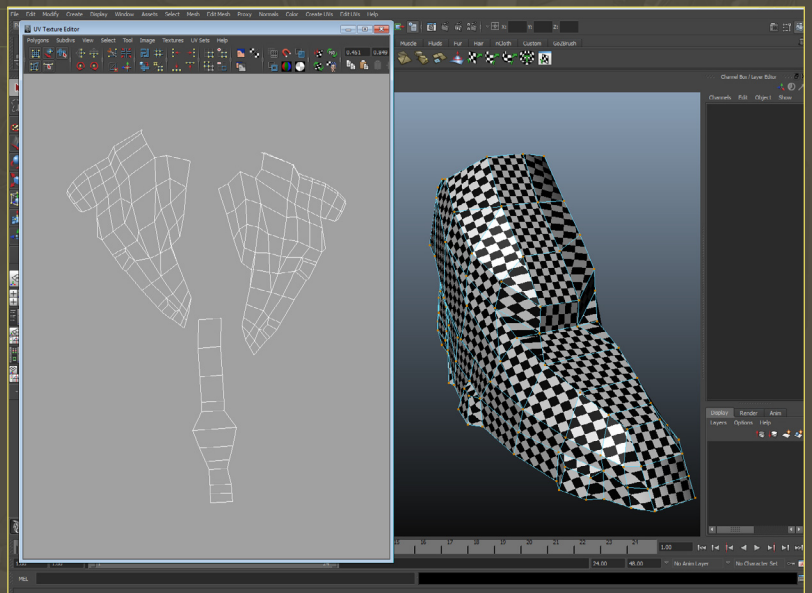
Moving on to the boot model, first grab the bottom of the foot and give it a planar projection. This helps split these UVs off from the main island of UVs that we will be working with and, since the bottom of a character's feet are rarely seen, can be given less real estate if needed (Fig.31).

Fig 31



Next grab the top side of the foot and apply a planar projection, which essentially splits the model in half. Grab the two halves, which should consist of the left and right side of the foot, with a seam running down the back, and apply a Pelt map to each one. Both sides are not identical, so the result will be slightly different, but should be quite similar (Fig.32).

Fig 32





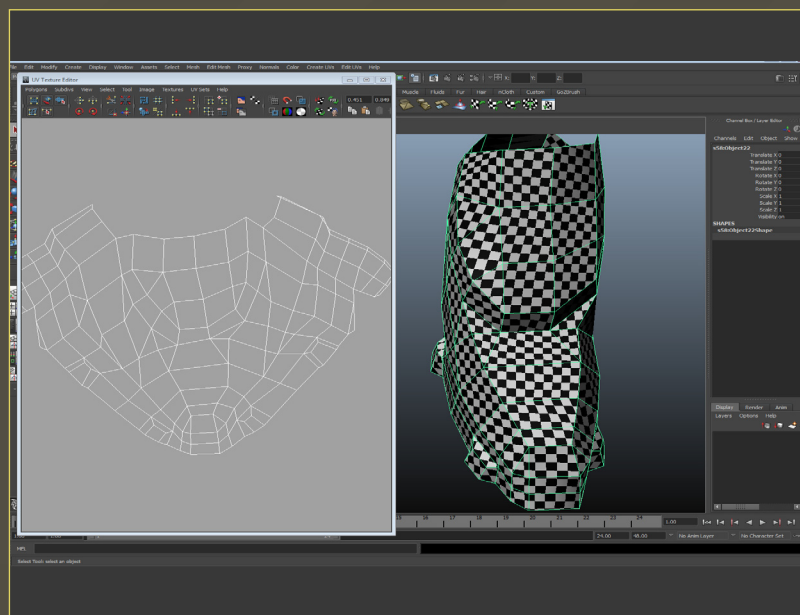


Fig 33

Once you are happy with all three elements, weld the top side of the foot to both halves and leave the seam of the foot near the sole and at the back of the boot near the ankle (**Fig.33**).

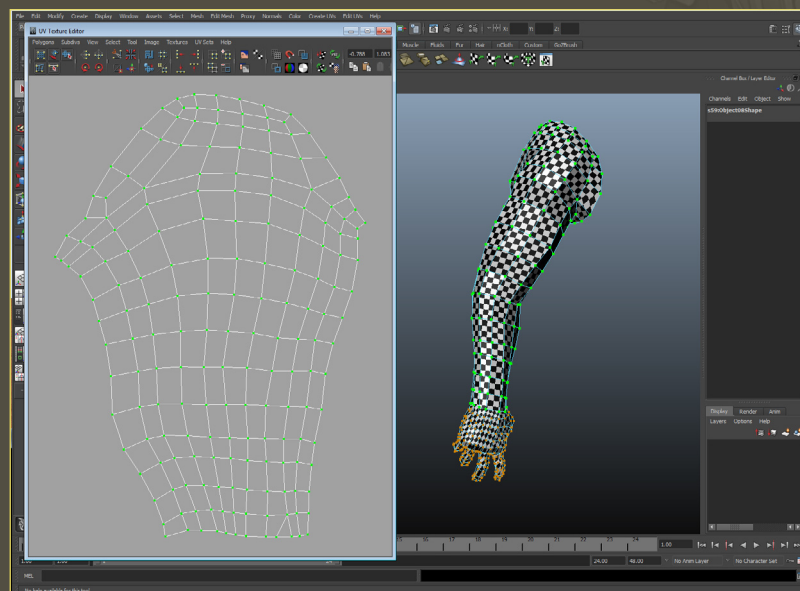


Fig 34

Moving over to the arm and hand, grab the faces that will make up the arm, splitting the two at the wrist. With these faces selected in the UV Editor, detach them and apply a cylindrical projection, leaving the seam on the underside of the arm as this will rarely be seen and mostly covered by armor plates (**Fig.34**).

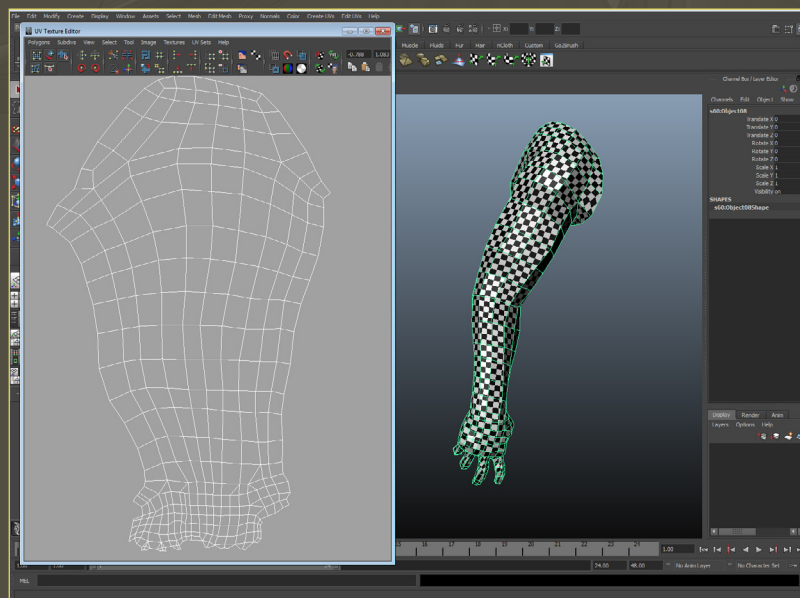


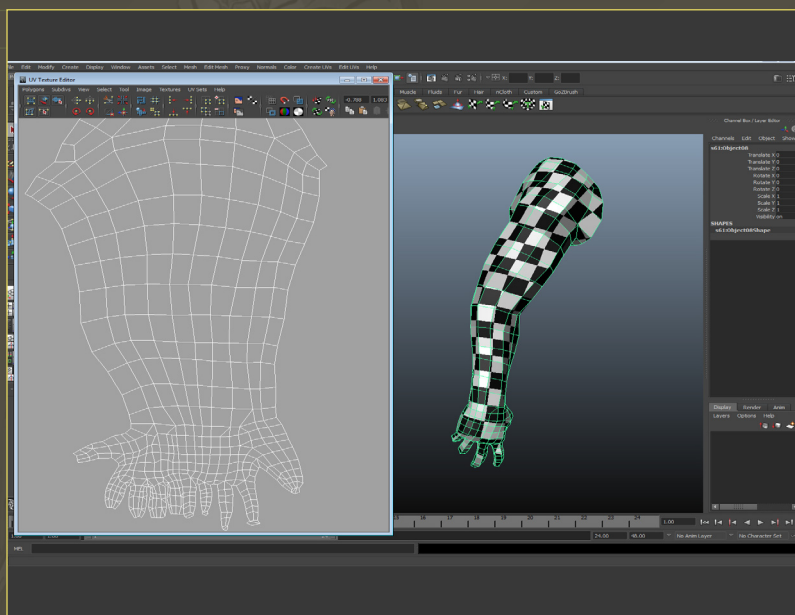
Fig 35

Next split the finger and thumb UVs from the hand and move them aside. Grab the top of the hand and apply a planar projection. Do the same for the palm and weld the two halves together at the bottom of the hand, leaving the seam at the fore finger and thumb. Once this is done weld this new island to the arm at the wrist UVs (**Fig.35**).



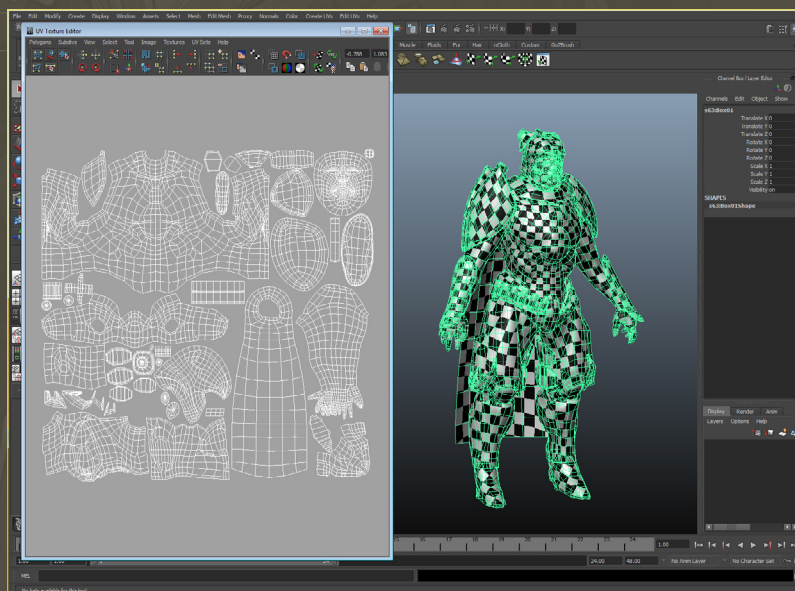
Next, tackle each finger individually. Apply a planar projection to the underside then spread out the UVs manually for the topside islands. Once you are happy with their layout, weld them to the main island consisting of the hand and arm (Fig.36).

Fig 36



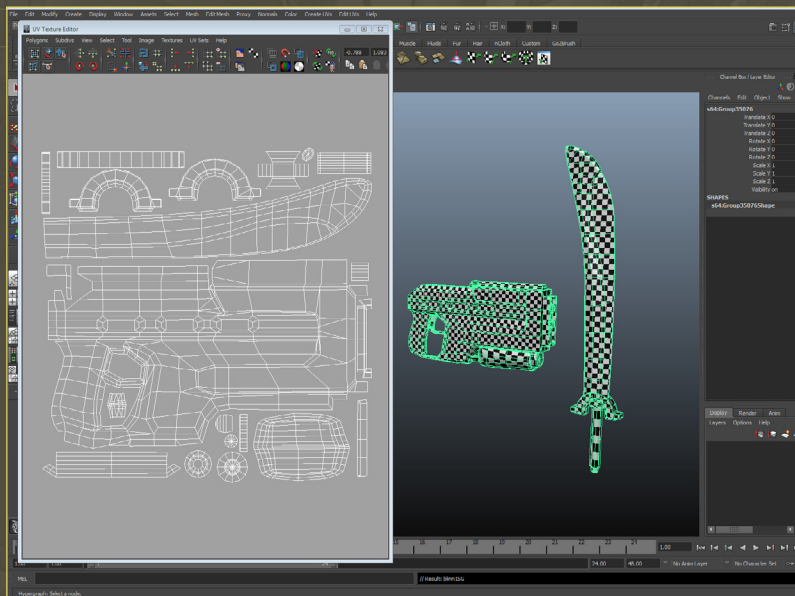
Finally merge the models together, access their UVs, and begin organizing all of the islands into the working 1:1 region of the UV Editor. There is no hard and fast rule as to how things are laid out other than trying to keep the density of each piece equal. Try to line up elements as they are in 3D space so that they can be easily read. A good example of this is the positioning of the leg armor pieces being next to each other and the pelvis being located under the torso (Fig.37).

Fig 37



Unwrapping the weapons is fairly straightforward. Put them on a separate sheet as, in a game, they could be swapped out for other models, need different effects or limitations on them and allow for better asset management. For the most part split each weapon down the middle, like the helmet, and modify a planar projection to try and keep the UVs as solid islands (Fig.38).

Fig 38



## GAVIN GOULDEN

For more from this artist visit:

<http://www.gavimage.com/>

Or contact him at:

[gavin@gavimage.com](mailto:gavin@gavimage.com)





## 3dtotal.com

Is a resource website for the CG community; amongst our growing number of products for CG artists, we produce two monthly downloadable PDF magazines – 2DArtist and 3DCreative.

We are based in the West Midlands, in the UK, and our intention with our magazines is to make each issue as full of great articles, images, interviews and tutorials as possible. If you would like more information on 3DTotal or our magazines, or if you have a question for one our team, please use the links below.

### CONTACT INFORMATION

<http://www.3dtotal.com>

<http://www.3dcreativemag.com>

<http://www.2dartistmag.com>

Editor & Content Manager > Simon Morse

[simon@3dtotal.com](mailto:simon@3dtotal.com)

Lead Designer > Chris Perrins

[chrisp@3dtotal.com](mailto:chrisp@3dtotal.com)

Marketing > Tom Helme

[tomh@3dtotal.com](mailto:tomh@3dtotal.com)

### PARTNERS

If you have a CG community website and would like to support 3DCreative and/or 2DArtist magazine by showing our banners, please contact Lynette Clee at the email address above

